Disciplinarity or interdisciplinarity*?*

An analysis of the organization of knowledge in an environmental and development economics Master programme

Saundre Lasca McConney

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Department of Educational Research

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http://www.duo.uio.no/

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Abstract

This thesis has set out to find what characterizes the organization of knowledge in Master programmes which may present different knowledge fields in them. The popularity of interdisciplinary academic programmes or programmes which have multiple knowledge fields in them has increased over the years in higher education, thereby encouraging and steering students to think and learn in ways that are inclusionary, rather than exclusionary, when it comes to academic knowledge. It has often been the case that academic programmes may bear titles or names which may appeal to the popularity of interdisciplinary knowledge, and, thereby, present an impression that they offer different knowledge fields in them, but a closer look at their curricula may reveal that a single disciplinary field is emphasized over others. This thesis sets out to investigate and uncover this discrepancy by looking at the way knowledge is organized in what appears to be interdisciplinary academic programmes. It will also address how this discrepancy may affect student learning in higher education. By applying five categories which comes from Stark and Lattuca's (1997) concept of an academic plan, categories which relates the most to the selection and organization of knowledge, as an analytical framework, this would allow for looking at this discrepancy more clearly, and thereby, identifying that which characterizes the way knowledge is organized in interdisciplinary programmes. These categories will be further explored by employing a perspective on disciplinary knowledge which derives from Becher (1994). I make a distinction that while I will be employing Becher's (1994) perspective on disciplinary knowledge and I will be employing Stark and Lattuca's (1997) perspective on curricular knowledge. Using this framework, this thesis will look at a particular programme, that is, an environmental and development economics Master programme, which appears to be interdisciplinary when looking at its title.

Though, interdisciplinary programmes and their emerging popularity has some significance for the future of higher education curricula, the move towards blended knowledge fields in higher education curricula did not take place without some external and internal influences which have been affecting higher education curricula for some time. This thesis at first traces some external and internal developments which have led to an increase in interdisciplinary curricula in higher education. Thereafter, the thesis will bring up some perspectives on academic knowledge and the analytical framework that it uses to investigate the characteristics of the organization of knowledge in interdisciplinary programmes. This thesis

will also provide a description of the case study that was used, as well as, an analysis based on Stark and Lattuca's (1997) academic plan framework.

In terms of the findings of this study, it was found that even though the environmental and development economics Master programme initially seemed to present different fields of knowledge in its title, it was found that one field of knowledge was dominant in its curriculum and other areas of knowledge were subsumed under the logic of the dominant field. The field of knowledge that was found to be dominant in the curriculum is the discipline of economics. This is was found to essentially characterize the way knowledge had been selected and organized in this particular programme. It was also found that a single disciplinary culture, through its adherence to a specific method of inquiry, which the programme's department adheres to, seemed to have defined the overall profile of the programme, and that methodologies and theoretical approaches from other disciplines which are mentioned in the curriculum did not seem to gain footing in the organization of knowledge and educational activities of the programme.

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1 Introduction

Higher education institutions today and their curricula are situated in a world of change, so asserts Barnett (2000) in his article on changing patterns in higher education curricula in the United Kingdom. It is not only Barnett (2000) who has made these observations, but another commentator, Bridges (2000), also claims that certain changes, specific trends and developments have taken hold in higher education curricula, affecting the way knowledge in higher education institutions, particularly in universities, have traditionally been taught and organized. The way knowledge is organized or arranged through the medium of curriculum is the focal point of interest for this thesis. The reason for this point of interest is based on a much broader interest in the area of disciplinary knowledge fields, specifically, how internal structures of various disciplines actually show up in the curriculum. While this interest prevails, I have also been curious about the way knowledge is arranged in a curriculum which may promote more than one disciplinary perspective in its content. It seems that knowledge organization and arrangement in a blended knowledge curriculum may take on a different form or may play out differently to that of a curriculum which only has one disciplinary perspective in it. In other words, it may be possible that there may be a clash or a conundrum on which perspective should be emphasized the most, or, there could be a challenge in presenting each perspective equally in an academic programme. Also, the names or titles of Master programmes often provide clues on which disciplinary perspectives will be presented in an academic programme. This may mean that the title of the programme may also provide a clue on the way knowledge in the programme is organized. With this in mind, I began to question if the name of a programme truly reflects that which is in the curriculum. One Master programme, in particular, caught my attention in this regard. It was a programme which featured at least three disciplinary fields in its title, but was administered by one academic department at a university. The programme that was of interest to this study is entitled the Environmental and Development Economics programme or EDEC, for short. This had caught my attention because it struck me that one department who is responsible for putting together its curriculum, would, thereby, also be responsible for making sure that each disciplinary field features in the curriculum. From here, I began to inquire how this particular department managed to organize the curriculum in such a way as to present all three disciplinary fields. Thus, this inquiry has prompted me to explore the area or theme of the organization of knowledge in the curricula of Master programmes, particularly programmes

which by their titles alone would indicate that they are interdisciplinary or have more than one discipline at work in their curricula. Based on this, I bring forth one specific research question in this thesis which I believe may help to shed some light on my curiosities about the organization of knowledge in curricula. The research question that I put forward for this study is what characterizes the organization of knowledge in the Environmental and Development Economics Master programme? Subsequent to the investigation of this inquiry, I will also consider and briefly discuss at the end of this thesis, *the possible implications this may have for student learning*.

In addressing my research question, I hope to unearth the possible characteristics of a programme which at first glance seem to incorporate different knowledge fields in it. Also, by doing so, this may provide some insight into what kinds of knowledge students are expected to learn and the purposes for them learning these kinds of knowledge. Donald (2009) comments that when we examine study programmes more closely we are able to see what students are expected to learn. This means that the way knowledge has been organized in a curriculum may tell us about what students are expected to learn. By addressing the research question, it may help to bring together a possible link between organization of knowledge and student learning.

While the link between the organization of knowledge in higher education curricula and student learning may solely be a matter for curriculum studies, this is not separated from the broader context of higher education, a context which has been experiencing constant change for quite some time. This chapter will at first spend some time discussing some of the broader changes which have affected the way higher education curricula has been shaped since the late twentieth century and how these changes played a part in having more blended knowledge fields feature in higher education study programmes today.

Even though while it may be useful to note the trends and developments which may have affected higher education curricula, the story would render incomplete if theories on the nature of academic knowledge were not included in the discussion, but this will be the task of the second chapter of this thesis. Chapter two will delve deeper into existing theories on what knowledge looks like in academic settings, such as is found in the university. Chapter two will also further discuss existing perspectives on higher education curricula, as well as the analytical framework which the thesis uses to describe and analyze the particular curriculum of the Environmental and Development Economics Master programme. From here, chapter

three will set out to explain the research methodology that was used in this study and the practicalities of the research process involved. Thereafter, chapter four will go on to describe the EDEC programme in detail. Continuing on from here, chapter five will provide a more in-depth analysis of the programme and its disciplinary or interdisciplinary makeup. Chapter six will provide a final discussion on the findings of this study, and finally, the last chapter will put forward the conclusion of this thesis. Seeing that the schema for thesis' chapters has been presented, I now proceed to the discussion on the various changes which have affected curricula in higher education.

1.1 A changing context for higher education curricula

1.1.1 Knowledge economy, globalization and Mode 2

Contemporary life at present is predominantly organized around knowledge because it is believed that more and new knowledge is needed to solve various and growing problems in our world today. Some theorists argue that knowledge has taken such central place in our modern society today that it has become the basis of our economy and social action (Drucker, as cited in Stehr, 1994, p. 5). Therefore, great emphasis has been placed on knowledge creation and knowledge production, especially in the economic sphere. It is for this reason that the term '*knowledge economy'* was coined to describe the way knowledge has become a marked feature in economic life. The OECD's definition of the knowledge economy (as cited in Barrow, Didou-Aupetit & Mallea, 2003, p. 3) is when knowledge, rather than raw materials, fixed capital or managerial skills, makes up a larger proportion of productive capacity in an economy. According to Barrow, Didou-Aupetit & Mallea (2003), the knowledge economy has emerged because of developments in information and communication technologies. These technological developments have enabled the world to become a smaller place, in that, communication, information, manufactured goods and financial capital is able to move from one site to another in a very quick period of time, without any constraints posed by national or regional boundaries (Barrow, Didou-Aupetit & Mallea, 2003). Scott (1998) puts forward that there has been a conceptual and technological change in the way time and space is configured, for it has now become possible for a lesser divide to exist between the local and the global. According to Barrow, Didou-Aupetit &

Mallea (2003), the term which best encapsulates these acute changes and trends is *'globalization'*.

Globalization, which has been rapidly spread by modern technology, had made its way into the economic, social, cultural and political spheres worldwide in a way that crosses the traditional boundaries of nation-states (Altbach, 2004; Barrow, Didou-Aupetit & Mallea, 2003). Barrow, Didou-Aupetit & Mallea (2003) claim that it was precisely because of the drive to produce new technologies to boost economic growth in developed economies, that so much emphasis and focus have been placed on the use of knowledge in the modern economy. According to Barrow, Didou-Aupetit & Mallea (2003), the development of the theory on human capital, one of the relatively new theories on economic growth, had helped to push knowledge to the forefront of being one of the most desirable needs for the labour market. Barrow, Didou-Aupetit & Mallea (2003, p. 3) defines human capital as "the knowledge that individuals acquire during their lifetime and use to produce goods, services, or ideas in market or non-market circumstances". Human capital theory suggests that it is human capital, or the knowledge that is embodied in those found in the labour market, that would enable the development of new technologies which would then result in sustainable economic growth (Ibid). It is for this reason that much attention has been placed on higher education today. Altbach (2004) and Altbach and Teichler (2001) claim that the pivotal emphasis placed on the knowledge economy in the twenty-first century have caused much attention to turn towards higher education. They put forward that higher education institutions, universities in particular, "provide the basic research that enables innovation to place. They are also the source of training for the personnel required for the knowledge-and-service-based industries of the new century. All of this takes place in a global framework" (Altbach & Teichler, 2001, p. 5). In other words, higher education institutions, namely universities, are seen as being responsible for providing curricula that would not only educate people to carry out knowledge-intensive work, but would enable graduates to generate new knowledge in a variety of contexts. This means that universities now have a responsibility to design and administer curricula which would teach students to do just that, and, this may involve having curricula present multiple knowledge perspectives. Therefore, there has been much interest generated lately in developing interdisciplinary curricula in higher education. By developing such curricula, higher education institutions seem to have responded to these global changes. In a knowledge-intensive, global economy, universities have had to focus on designing curricula that would promote skills that would enable knowledge creation and innovation,

and, it is believed that blended knowledge curricula would teach students how to work with and combine different knowledge fields, and this would, therefore, enhance innovative and creative skills in a knowledge-intensive environment. Even though the knowledge economy is looking to universities as the producers of new knowledge, and universities have responded by producing interdisciplinary or blended knowledge curricula, the perception of universities being primary knowledge producers has been challenged by some commentators. This challenge has particularly expressed itself in an alternative theory which has been put forward by Gibbons et al. (1994).

Challenging the idea of universities being primary knowledge producers, Gibbons (1993) and his colleagues claim that there has been a break from traditional academic knowledge, that is, disciplinary knowledge, which has come from universities. They refer to traditional academic knowledge as Mode 1 knowledge (Ibid). They put forward that a new type of knowledge production has emerged and has been emerging at multiple sites, and this type of knowledge is used specifically for application and problem-solving in different contexts which are particularly found in the workplace (Ibid). This kind of knowledge production tends to place more emphasis on blending knowledge from different fields, in other words, it focuses more on interdisciplinary knowledge. They refer to this new type of knowledge production as Mode 2 knowledge (Gibbons et al., 1994; Barnett, 2000). According to Gibbons (1994) and his colleagues, the latter form of knowledge has come about in the conditions that were set by the changes that were brought on by the rise of the knowledge economy and globalization. The role of the university as an autonomous, primary knowledge producer has been contradicted by Gibbons et al's (1994) Mode 2 paradigm.

In light of the Mode 2 theory and the subsequent changes brought on by the knowledge economy and globalization, universities have been challenged to rethink the way knowledge has traditionally been produced and this means that universities have been challenged to rethink the way curricula have always been structured and put together. In the knowledge economy it could be said that Mode 1 has been called to show a Mode 2 character to it (Gibbons et al., 1994; Barnett, 2000). So, in order for universities to heed this call, universities have been required to adapt in specific ways so that they can deliver the type of education that aligns itself with the needs of the knowledge economy. Scott (2000, p. 8) explains that in the spirit of the knowledge economy and Mode 2, the implications of these have brought higher education to the point that "new subjects, new curricula, new teaching

(and learning) technologies, and new conceptions of science and knowledge into, and through the University". This means that the university has had to find new ways of creating new subjects and new type of curricula, incorporating these with new learning and teaching technologies. Not only this, but new subjects have constantly been introduced in university curricula, subjects which are more geared towards vocational relevance, that is, more geared towards Mode 2, than intellectual interest (Scott, 1998). To achieve this, universities have set out to combine different fields of knowledge, that is, they have set out to incorporate more than one discipline into various curricula, resulting in what is known to be interdisciplinary programmes. Barnett (2000) comments that new subjects may be interdisciplinary in nature so that they can respond to the vocational needs of prospective graduates and the knowledge economy. One of the possible reasons why some in the higher education field believe interdisciplinary programmes to be the answer to various vocational needs is that blended knowledge, or, what Klein (1996) and Barnett (2000) would call "*hybridity*", "creates an ever-expanding obligation to learn the techniques and concepts of many disciplines" (Klein, 1996, p. 57). This means that students learning an interdisciplinary curricula would be placed in a position where they would be ever learning different methods and concepts from other disciplines, and this would be considered useful for problem-solving and knowledge application in various contexts because they would mostly likely be using more than one field of knowledge which they would have obtained from an interdisciplinary curricula. With this in mind, higher education institutions are somewhat pressured to show an element of what Barnett (2000) calls, '*performity'* in their curricula, where greater emphasis is placed on the application of knowledge and the practical usefulness of knowledge in problem-solving and performing certain tasks (Ibid). In other words, universities are now required to show an element of Mode 2 in their curricula. Therefore, higher education today has adopted a more performance or application-based approach to curricula (Ibid). Some authors, along with Scott (1998, 2000) hold the view that the increased emphasis on 'performity' has caused the traditional discipline-based curriculum to be reformed and transformed to a notable extent (Bridges, 2000; Muller, 2009; Ensor, 2004). As a result of this reform, contemporary higher education curricula have been called to place greater emphasis on connectedness and coherence in knowledge so that knowledge can be practically applied to various real-life contexts (Valero, Ravn & Skovmose, 2009). Hence, there has been a push towards developing programmes which have hybrid combinations of knowledge in them (Ensor, 2004; Klein,

1996). Barnett (2000) explains the following changes that have resulted in study programmes being increasingly hybridized in terms of their knowledge domains. He comments that,

> The arrival of mass higher education, the lowering of unit of resource, the desire of the state to move curricula in the direction of *enterprise*, the increased pull of the labour market, the bargaining that students may come to exert on their curricula, the greater interest of the professions in their educational functions: all these developments are society-wide in their manifestations. Some institutions and some knowledge fields will be able to resist changing to some extent but it is unlikely that any pool of purity will remain (Barnett, p. 260).

Barnett (2000) makes the assertion that every curriculum in higher education will display some form of hybridity in them. This breaks with the tradition of discipline-specific programmes (Ensor, 2004; Klein, 1990; Klein, 1996). Barnett (2000) predicts that discipline purity in contemporary higher education curricula will be increasingly rare. The extent to which this happens, in other words, the extent to which various curricula will show hybridity will vary from discipline to discipline and from institution to institution because there may be some disciplinary factors which influence the way hybridity takes place in a curriculum (Barnett, 2000). For, Klein (1996, p. 57) claims that when it comes to the planning, designing and structuring of interdisciplinary curricula, "in practice, though, selected cuts are made". This means that there may be one disciplinary knowledge structure that is more presented than the other(s). For, she claims further that, "even interdisciplinary knowledge is partial knowledge" (Ibid). So, in interdisciplinary programmes it may most likely be a case that one discipline dominates or is put forward more than another. The motive for interdisciplinary curricula may be to strive for more connectedness and coherence in knowledge, but a possible consequence, may be, an unavoidable one, one could see happening here is the issue of disciplinary dominance in interdisciplinary curricula. The question of which disciplines dominate in an interdisciplinary curriculum may have some bearing on student learning in higher education, especially in terms of the patterns of thinking and problem-solving that students are ultimately learning. Whether they are learning to approach problems and generate knowledge using different techniques and methods from different knowledge fields or whether they end up learning techniques and methods which are ultimately disciplinary, disciplinary dominance may result in them taking a singular direction when it comes to working with and applying knowledge in various workplace contexts. This may end up

undermining the very outcome that is intended for interdisciplinary learning, which is "the ability to change perspectives, to synthesize and integrate knowledge, and to cope with complexity" (Spelt, Biemans, Tobi, Luning & Mulder, 2009, p. 366). By examining a programme that could be seen as interdisciplinary at first glance, like the one which will be described and analyzed in this thesis, it will provide an opportunity to see if Klein's (1996) view here is the case for this particular programme and many others like it.

Though, the above discussion on the rise of interdisciplinary curricular in higher education provides the main platform from which to begin to understand the way interdisciplinarity made its way into higher education curricula, there have also been other changes which affected higher education curricula when it comes to the rise of interdisciplinary programmes. These changes, however, seemed to have played a more minor role in the rise of interdisciplinarity in curricula, for they may not have been directly responsible for causing interdisciplinarity to appear in higher education curricula, but they may have made it easier for curricula to be adapted in ways which would allow interdisciplinarity to appear more easily in higher education curricula. These will now be discussed in the sections that follow.

1.1.2 Diversification, modularization and 'creditization' of higher education curricula

Scott (1998) and Trow (1970) bring to the fore that the latter half of the twentieth century had seen an exponential number of students enter higher education institutions, especially in the developed world. Scott (1998) puts forward that a large student population has brought with it a diverse student population. This means that higher education now has to cater for students of different ages and backgrounds, and, who have different academic abilities and academic achievements. According to Young & Gamble (2006), a diversified student population also means that the way university had traditionally designed and administered curricula also had to change. Scott (1998, p. 115) remarks that, in the wake of a diversified student population, "the old informality that once marked the university curriculum can no longer be tolerated". He also notes further that because of the diversity of students in higher education today, students are now faced with much more variety of careers and a much smaller number of students are set on following an academic career path (Ibid). Higher education curricula, therefore, have to accommodate the needs of a growing and diverse student population, as well as, meeting the needs of the labour market in the knowledge economy (Ibid). Thus,

higher education study programmes since the latter half of the twentieth century had to become more diverse in terms of what they offer in terms of their subject matter and in terms of students' aspirations and career prospects (Scott, 1998; Meek, 2000; Dill & Teixeira, 2000). Higher education institutions, therefore, have moved towards designing more interdisciplinary programmes so that they could cater to this need of diversification, and, as a result, students have been presented with more variety of options when it comes to undertaking a study programme. However, with diversified programmes catering towards a large student population, higher education institutions were subsequently faced with the dilemma of harmonizing programmes so that it would be made easier for a diverse population of students to be able to transfer their qualifications through multiple contexts. Universities and higher education institutions needed a curriculum model that would facilitate portability and exchangeability in their academic programmes (Ensor, 2004). In the section that follows, it will be shown how modularization as a model for exchangeability and portability in higher education curricula has aided the emergence of interdisciplinarity in curricula.

In 1999 the Bologna Declaration was a policy framework that was put forward for the purpose of integrating and harmonizing academic frameworks and standards in the Europe (The Bologna Process, 2011; Cerych, 2002; The Bologna Declaration, 1999, Altbach, 2004; Altbach & Knight, 2007). Through the Bologna process, the process by which the Bologna declaration was to be fulfilled, policy makers aimed to create an integrated higher education region in Europe, now known as the European Higher Education Area (EHEA), through the standardization of curricular objectives and frameworks which have been stipulated in the declaration (Cerych, 2002; History, 2010; Karseth, 2006). The Bologna framework, since its inception, has served as a model for governing higher education curricula in the EHEA through its stipulated learning outcomes and its European Credit Transfer System (ECTS), whereby students earn credit points on completion of courses and programmes at higher education institutions, which they then could transfer to other higher education institutions in the EHEA without undertaking extensive and additional courses to meet certain degree requirements (ECTS users guide, 2009; European Credit Transfer, 2011; The Bologna Declaration, 1999). This meant that under the Bologna framework, higher education curricula had experienced a restructuring process that has never been seen before. Courses in academic programmes which were now made up of modules that adhered to Bologna's ECTS, could be exchanged, mixed and matched without any obstacles in the way of obtaining academic qualifications (Ensor, 2004; Bridges, 2000). Ensor (2004) puts forward that the discourse of

credit transfer allows students to withdraw courses or modules and replace them with courses or modules which may come from different disciplines, depending on the rules and obligations stipulated for their particular programme. This means that interdisciplinary curricula could now be more easily created in study programmes. According to Ensor (2004) the introduction of the modularized curriculum has caused a shift from the traditional discipline-oriented curriculum, which had year-long discipline-based courses in them, to courses which come from different knowledge fields and are broken up into smaller modules, and completed over a shorter period of time.

The Bologna framework through its modularized structure and ECTS has for the first time caused a significant change in the way knowledge had been traditionally organized in curricula. Knowledge in higher education curricula has now become 'creditized' and has taken on a modularized appearance. According to Bridges (2000) these specific changes has had certain implications on the way traditional patterns of learning and knowledge domains have taken place in higher education. A further discussion on these implications will be held in the following section.

1.1.3 Modularization: a deconstruction of knowledge

Bridges (2000) claims that the modularization of curricula has permitted the deconstruction of traditional patterns of learning in higher education in such a way, that it has allowed for the deconstruction of traditional disciplinary fields as acceptable and recognizable units of academic knowledge. He explains that modularization has allowed for the "taking apart of traditional subjects as *epistemological* units of study" (Bridges, 2000, p. 42). This kind of deconstructing work suggests that parts of knowledge, in principle, may be imported from and exported to other contexts and blended in to suit the context that it is placed in. Young & Muller (2010, p. 18) refer to this as "de-differentiation of knowledge", in other words, the deconstruction of knowledge involves the breaking down of boundaries which traditionally kept knowledge domains separate. For they put forward that under modularization, there is a "steady weakening of boundaries" and with that "a de-differentiation of knowledge and institutions" (Ibid). The weakening of boundaries, the de-differentiation of knowledge, and the import and export of knowledge, all describe perfect conditions for interdisciplinarity and interdisciplinary learning. This, therefore, means that modularized curricula favour and promote interdisciplinary knowledge in higher education curricula because students are given

more freedom to select modules and courses from a range of disciplines which may be in line with their own interests and objectives (Muller, 2005). According to Ensor (2004, p. 344), "interdisciplinarity is facilitated by allowing students to select from a range of modules within different disciplines…" She also claims that the modularization model of curriculum allows "students to create their own curriculum packages" (Ensor, 2004, p. 344). Becher and Trowler (2001, p. 10) claim that by presenting knowledge in "module-sized chunks", knowledge can be commodified and packaged a certain way. Modularization makes it possible for students to create their own curriculum packages because of the exchangeable and portable nature of the courses with the credit points system attached to it. In a modularized curriculum, students can be seen as agents in creating interdisciplinary curricula, and, because of the role of student agency in a modularized curriculum, this particular type of curriculum has a more student-centered approach (Bridges, 2000). This differs remarkably from the more traditional disciplinary model of curriculum, where the curriculum is based exclusively on the knowledge structure of a particular discipline and where the subject matter is dominated by a specific discipline (Ensor, 2004). While a modularized curriculum aims to deconstruct traditional academic knowledge, it also aims for students to construct their own knowledge. It can therefore be understood that the emergence of interdisciplinary programmes has played a part in the deconstruction of academic knowledge. Even though it has been useful to delve into the causes for the emergence of interdisciplinary programmes in higher education, it would also be deemed useful for this discussion to bring forth a brief history of interdisciplinary programmes and the course (pardon the pun) they took in higher education since their inception.

1.1.4 A brief history of interdisciplinary programmes

Kreber (2009) claims that learning and teaching in higher education have been characterized by disciplines since the founding of the first universities in the medieval era. This means that curricula in higher education have traditionally been characterized along disciplinary lines, but Klein (1996, 1990) notes that interdisciplinary programmes, as we know it, have made an appearance as early as the late 1960s in the United States, though these were in their infancy stages and were found to be largely on the periphery in higher education. Political and social reforms that were occurring in the 1960s and early 1970s in the United States, had resulted in calls for universities to respond appropriately to these by initiating research into these areas, thereby creating curricula which would incorporate studies of these areas (Klein, 1990). Thus,

many of their interdisciplinary programmes which were developed at the time, though they were in their experimental stage, offered alternatives to that which was being studied in the traditional disciplinary curriculum, a curriculum which had been typical for higher education for so long (Ibid). It is for this reason that this particular period of time has been widely believed to be the watershed era for interdisciplinary curricula in higher education (Klein, 1990). However, Klein (1990, 1996) makes the point that these interdisciplinary programmes came about as a result of an earlier curriculum movement which took place in the 1930s and 1940s, a movement which attempted to promote an interdisciplinary approach between two or more fields of study, examples of these early interdisciplinary areas which Klein (1990, 1996) names are Area studies, American studies and Environmental studies. Though, these particular areas of study really did take off only from the 1960s onwards, but, due to their peripheral position in higher education at the time, these programmes were administered by only a few faculty members and economic recessions which had occurred in the late 1970s and in the 1980s had caused many of these programmes to end (Ibid). However, much later on, a renewed interest in interdisciplinary programmes had shown itself through an introduction of programmes, such as Gender and Women studies, and subsequent programmes like these (Klein, 1996). By this time, "new hybrid fields of knowledge" had come to the fore, according to Klein (1996, p. 32). She goes on to comment on the state of interdisciplinary curricula in contemporary higher education and claims that the crossing of disciplinary boundaries has now become a part of the knowledge production process, it has, therefore, moved out of the periphery and has now become more mainstream (Klein, 1996).

It can be said that in the contexts of the knowledge economy and Mode 2, together with the move towards diversification, and the modularization and creditization of higher education curricula, interdisciplinary programmes have increased remarkably in higher education. This has led to an increase in the blending of various knowledge structures in higher education curricula. This means that the way knowledge has traditionally been organized in curricula may have somewhat changed, notably, knowledge that used to be organized according to clear, straight-forward disciplinary boundaries, now is experiencing organization along boundaries that may be more murky and vague, causing the organization of knowledge in interdisciplinary programmes to be a bit more complex. Along with this, the perspective of knowledge in academic settings may have changed from a strictly disciplinary perspective to a perspective which includes the view that disciplinary fields can be blended and combined, that disciplinary boundaries are flexible and changeable. However, even if many researchers

point to a general rise in interdisciplinary programmes and more flexible disciplinary boundaries, it may also be the case that disciplinary logics still tend to dominate the organization of knowledge in many programmes. From here, this thesis will go on to discuss some perspectives on knowledge in academic settings in the next chapter.

2 Theoretical perspectives and analytical framework

2.1 Perspectives on academic knowledge

Knowledge in higher education can be seen as being organized into various knowledge groupings, or, as Clark (1983, p. 16) puts it, "bundles" or "bodies" of knowledge. Academic knowledge is specialized and segmented into different groupings or bundles according to their own logic in terms of the way their knowledge is accumulated and organized. These bundles of knowledge are referred to as disciplines and they are "the dominant force in the working lives of academics" (Clark, 1983, p. 30). This means that much of the work which academics do revolves around their respective disciplines (Clark, 1983; Becher & Trowler, 2001). However, according to some theorists, it is not only the actual knowledge itself which may define disciplines, but, also what and who is associated with them may also appear as part of their definition. This means that for some of these theorists, disciplines by definition, may also include the individuals and communities which may be associated with them (Becher & Trowler, 2001). For theorists who hold this position, disciplines have a social element associated with them. It is at this point that the social perspective on disciplines will be discussed in the next section.

2.1.1 Disciplinary knowledge: a social perspective

Messer-Davidow (1993) and her colleagues see disciplines and disciplinary knowledge through a Foucaltian lens. They assert that disciplinary knowledge, or, as they put it, "boundary work", is not only about the composition and coherence of ideas, but it also involves "elements of power" (Messer-Davidow, Shumway & Sylvan, 1993, p. 4). In their work, they analyze disciplines using a genealogical approach, that is, they try to explain disciplines from a historical point of view (Messer-Davidow, Shumway & Sylvan, 1993). They assert that knowledge and power are associated with one another, in that they claim that knowledge is a product of power (Ibid). Lenoir (1993) makes a similar claim by putting forward the view that disciplines help to establish relationships between practitioners' and particular institutions and economic contexts. He goes on to claim that disciplines function as demarcators of boundaries between experts and novices, thus creating a hierarchy between the

two (Lenoir, 1993). Lenoir's (1993) position along with that of Messer-Davidow, Shumway and Sylvan (1993) reflects the Foucaltian view of power relations. However, Lenoir (1993) does not see power in this context as being a negative, oppressive force, but as a positive one which possesses productive capacities. For he claims that, "disciplines are dynamic structures for assembling, channeling, and replicating the social and technical practices essential to the functioning of the political economy and the system of power relations that actualize it" (Lenoir, 1993, p. 72). Lenoir's (1993) views here not only reflect the position that disciplines are made up of power relations, but, most importantly, that disciplines are made up of social relations and that knowledge is a social construction. He is not the only one who puts forward that disciplinary knowledge is a social construction, but another theorist, Knorr-Cetina (1981) puts forward this position as well.

Knorr-Cetina (1981) put forward, much like Lenoir (1993), that knowledge is a social construction. The difference is that Knorr-Cetina (1981) is referring more too scientific knowledge. However, she goes a step further and describes disciplines as "knowledge cultures" (Knorr Cetina, 1999, p. 2). She puts forward in her view that disciplines are essentially epistemic communities which consists of groupings of specialists who are separated from other experts by institutional boundaries, boundaries which are deeply entrenched in educational fields, research organizations, professional and career paths, as well as, in other general systems of classification (Knorr Cetina, 2009). These groupings of specialists, Knorr Cetina (2009, p. 2) explains, follow certain "cultural specificities which emerge and thrive when domains of social life become separated from one another, or when they curl up upon themselves". Other theorists, such as Becher (1981), Becher and Trowler (2001), Lamont (2009), Kreber (2009) and Donald (2009) all see disciplines as social communities, and, that the knowledge and the social aspect of disciplines are inseparable (Becher & Trowler, 2001). Kreber (2009, p. 16), for one, sees disciplines as being "certain ways of thinking, procedures and practices that are characteristic of its community". Becher and Trowler (2001) sees disciplines as academic tribes and territories, in other words, as specialized communities which have specific identities that are often expressed in the use of professional language and literature which are peculiar to their specific discipline. It seems that the social perspective of disciplines can be regarded as valid because there seems to be a consensus amongst academics on what constitutes as knowledge in a discipline. This means that there is most likely a consensus about the method of inquiry, concepts, logical structure and problems pertaining to a discipline (Lodahl and Gordon, as cited in Muller, 2009). This

consensus between academics seems to show "social connectedness" amongst scholars, according to Muller (2009). This also shows that disciplines are marked by the way they are socially organized apart from the way their knowledge is organized. For many of these authors, the organization of disciplines takes place two-fold, the social and the epistemological, both are believed to be inseparable from one another. Price's study (as cited in Becher, 1994) indicates that it is necessary to see disciplines through this two-fold view of organization, because it allows for a fuller understanding of what disciplines are. From a teaching and learning point of view, this view also seems useful according to Donald (2009), because, she claims that there is a need to also see disciplines as social systems if we are to understand learning and teaching in interdisciplinary as well as disciplinary contexts. While this may undeniably be the case with disciplines, Donald (1983, p. 31) puts forward that even though the primary function of the university is the growth of knowledge, she claims that "we know very little about how knowledge is organized and structured". Donald's (1983) claim here is indicative of a need to explore the organization of knowledge more extensively. Young and Muller (2010) assert that academic knowledge is structured and different kinds of knowledge fields are structured differently in terms of their internal composition, that is, in terms of their theoretical and logical composition. Young and Muller's (2010) assertion indicates an epistemological view of disciplines, not a social one. In the following section, I will present an epistemological perspective on disciplinary knowledge as put forward by some authors.

2.1.2 Disciplinary knowledge: an epistemological perspective

One of the first authors to explain disciplinary knowledge from an epistemological point of view is Becher (1994). Becher's (1994) take on disciplines involves their classification based on four categories, which are *hard*, *soft*, *pure* and *applied* (Becher, 1994). These four categories are also found in the work of Neumann, Parry and Becher (2002) and are based on the earlier work of two other theorists, Biglan (1973) and Kolb (1981). His categorization of disciplinary knowledge goes as follows:

The first disciplinary category in his classification system is the *hard-pure* disciplines, of which many of the physical and natural sciences, such as chemistry, physics and biology can be placed under this category (Becher, 1994; Neumann, Parry & Becher, 2002). Knowledge in these disciplines is cumulative, atomistic, has a tree-like structure, and is more

hierarchically shaped (Becher, 1994; Neumann, Parry & Becher, 2002; Donald, 1983). Concepts in these kinds of disciplines are tightly structured and have more links in them because of their vertical structure (Donald, 1986, 1990). Disciplinary knowledge in the hard-pure category is more focused on universal truths and simplification. Hard-pure knowledge fields emphasize quantitative research methods and results (Becher, 1994; Neumann, Parry & Becher, 2002). Knowledge communities in this category tend to be task-oriented, competitive and gregarious (Ibid). They tend to be more involved in collaborative work with other authors on publications and have a high publication rate (Ibid). Disciplines in the hard-pure category also tend to be politically well-organized (Ibid).

The second category in Becher's (1994) system is the *soft-pure* disciplines. Here it is the social science disciplines, such as sociology and anthropology which best fits this category (Becher, 1994; Neumann, Parry & Becher, 2002). Knowledge in these disciplines tends to be reiterative, holistic or river-like in nature (Ibid). Disciplinary knowledge in this category show more interest in particulars or specific cases (Donald, 1983). Knowledge structures in the soft-pure disciplines appear more horizontal in shape compared to those found in hard-pure disciplines. Donald (1983) puts forward that the soft-pure knowledge structures often resemble a web-like structure, meaning, that there is often a cluster of concepts that are organized around one pivotal concept. Concepts also tend to be more loosely structured in the soft-pure disciplines. (Becher, 1994; Neumann, Parry & Becher, 2002). While this may be the case for the way concepts are arranged in soft-pure disciplines, their methods of inquiry emphasize an inclusion of qualitative data collection and often results in the interpretation of findings (Ibid). Disciplinary communities in soft, pure disciplines tend to be more individualistic in their approach and therefore collaborate less with other authors on publications. Disciplines in this category also tend to have a low publication rate (Ibid).

The third of Becher's (1994) categories, *hard-applied*, applies to the disciplines which are found in technical fields such as engineering. In this particular category knowledge is purposive and pragmatic, in that, know-how is based on hard, pure inquiry, but, the ultimate purpose of the knowledge is to master physical or natural environments and often results in products or techniques (Becher, 1994; Neumann, Parry & Becher, 2002). Knowledge communities in these fields tend to be more entrepreneurial, cosmopolitan, role-oriented and are often controlled by professional values (Becher, 1994). Hard, applied knowledge tends to be officially recognized in patents rather than in publications (Ibid).

The fourth and the last of Becher's (1994) categories refer to disciplinary knowledge that is mostly found in social science fields such as education. The *soft-applied* category applies to disciplinary knowledge that Becher (1994) considers to be more functional and ulitarian. Soft, applied knowledge is concerned with enhancing professional practice and is dependent upon knowledge that is often produced in soft, pure disciplines (Ibid). In soft, applied fields knowledge is accumulated through a reiterative process, whereby, knowledge that is supported by theory is practically applied (Neumann, Parry & Becher, 2002). Knowledge in this category often results in protocols and procedures (Becher, 1994). Disciplinary communities in soft, applied fields are more outward-looking, power-oriented and uncertain in status, and they tend to be dominated more by intellectual modes (Ibid). Consultancies seem to dominate publication rates in soft-applied disciplines (Ibid).

Considering the ways in which disciplines can be classified, as put forward by Becher's (1994) categories above, these make it possible to see how disciplinary knowledge is able to be bundled in four distinct ways. Other scholars such as Lamont (2009, p. 54) put forward the view that distinct "epistemological styles" can be found in academic disciplines. In other words, there are specific ways of thinking, reasoning and building knowledge which can be found in disciplinary knowledge. Lamont (2009, p. 54) claims that there are "preferences for particular ways of understanding how to build knowledge as well as beliefs in the very possibility of proving those theories" when it comes to disciplines. These preferences or different epistemological styles may differ from discipline to discipline, but may be shown best by Becher's (1994) classification system, namely, by his hard, soft, pure and applied categories. However, if disciplines can be identified in academic knowledge using these categories, then it is possible that Becher's (1994) categories can also help to identify the ways in which knowledge in curricula may be organized. However, Becher's (1994) categories are not the only categories which have been put forward to classify disciplines, another author, Donald (1986, 2002), also presents a classification system for academic disciplines and this will be discussed in the following section.

In her work on disciplinary knowledge, Donald (2002, p. 7) defines a discipline as "a body of knowledge with a reasonably logical taxonomy, a specialized vocabulary, an accepted body of theory, a systematic research strategy, and techniques for replication and validation". Based on this definition, she brings forth four categories of her own as a means to differentiate between disciplines. The first category that Donald (1986, 2002) puts forward that disciplines

can be distinguished from each other by the *concepts* that they use. These are usually terms or phrases that are used to describe phenomena in a particular discipline (Donald, 2002). Donald (2002, p. 9) further describes concepts as "units of thought or elements of knowledge that allows us to organize experience". These units of thought can be linked together to form whole ideas which may be peculiar to a particular discipline (Ibid, 2002). As units of thought form whole ideas, these ideas are often linked together in some way to form a particular pattern or structure of thinking. This leads us to the second of Donald's (1986, 2002) categories, *logical structure*. Logical structure refers to the way concepts have been arranged and organized to show relationships between components of knowledge, essentially, it refers to a type of thinking or reasoning schema in a discipline (Ibid). Added to those processes and schema of thinking, Donald (1986, 2002) puts forward that there are also operations which can describe these processes of thinking and these she calls *methods and modes of inquiry*. Examples of this category which can be found in some disciplines may be critical thinking, problem solving, or the use of scientific method (Ibid, 2002). Lastly, the *criteria and processes used to determine validity*, is a category which shows the differences in the way different disciplines determine what counts as valid knowledge or not, in other words, it is the truth criteria in disciplinary fields (Donald, 1986, 2002). Donald (1986, 2002) defines these as the standards which are used to validate knowledge in disciplinary fields.

Apart from Donald's (2002) and Becher's (1994) categories providing criteria for identifying disciplines, their categories also show that disciplines may serve as lenses or ways to understand certain phenomena. Kreber (2009, p. 16) among others echo this idea by claiming that disciplines "provide particular lenses or frameworks through which to explore, understand and act upon the world". Donald (2009, p. 48) seems to echoes this idea too, for she claims that, "disciplines provide examples of systematic scholarly inquiry, and therefore, serve as scaffolding for students in the process of exploring different ways of constructing meaning". In other words, disciplines act as conceptual lenses with schemes of inquiry which enable students to construct meaning and perspective. In this sense, disciplines and student learning have a strong and direct connection in higher education. For, according to Donald (2009, p. 48), disciplines "determine the domain of knowledge, the theoretical or conceptual structures and the mode of inquiry that guide learning". Thus, disciplines may act as mechanisms for learning in higher education (Kreber, 2009). Kreber (2009) makes the observation that students in higher education are now required to be familiar with more than one mechanism for learning at a time. This means that students are now faced with academic

programmes which often have more than one discipline in a single programme. With this in mind, the next section attempts to explain the concept of interdisciplinary knowledge.

2.1.3 Interdisciplinary knowledge

Barnett (2000, p. 260), comments in his work on higher education curricula that study programmes in higher education today are bound to have some form of "*hybridity*" or mixture of knowledge fields in them. This means that programmes that have a mixture of two or more disciplines in them are being presented in higher education curricula as the appropriate answer to dealing with the increasing complex nature of various problems and changes in our world today (Barnett, 2000). For, Spelt, Biemans, Tobi, Luning and Mulder (2009) claim that interdisciplinary knowledge is able to address complex issues that are prevalent today because it is believed that crossing disciplinary boundaries enables a more extensive understanding of these issues. This belief has, hence, led to an increased interest in interdisciplinary knowledge in higher education curricula over the years (Spelt, et al., 2009). Barnett (2000) and Spelt et al. (2009) has not been the only ones pointing out the emergence of blended knowledge programmes in higher education curricula, but Klein (2000, p. 9) points to a similar idea and describes the mixture of disciplinary fields in academic programmes as a "*hybridization*" of knowledge. She puts forward that the term, hybridization, is a biological term which refers to the "formation of new animals, plants, or individuals and groups" (Ibid). She explains further that the product of hybridization results in a "*hybrid*" which "emerges from interaction or cross-breeding of heterogeneous elements" (Ibid). Therefore, in the context of academic knowledge, hybridization denotes a mixing or blending of relatively heterogeneous disciplines. In other words, disciplines which can be identified as being separate from each other based on some degree of variation between them, a mixing or blending of these may result in a hybrid disciplinary field. Klein (1990, 1996, 2000) names the following hybrid fields as examples of hybridization in academic knowledge: environmental studies, biotechnology, biochemistry, molecular biology, development studies, feminist studies, social psychology, political sociology, social anthropology, urban studies and so forth. Klein (2000) claims that academic knowledge which has a hybrid character to it indicates a sure sign of *interdisciplinarity*. According to this indication, interdisciplinarity involves a hybridization of more than one discipline (Ibid). Klein (1996, 2000) also refers to hybridization as the cross-fertilization of disciplines. Hybridization or cross-fertilization speaks of the integration, intermingling or a synthesis of knowledge (Klein, 1990; Spelt, et al., 2009). For Klein (1990,

p. 26), integration is "the combining of established categories, methods, and perspectives". This implies that the established categories, methods and perspectives already comes from established disciplines, therefore one can speak of interdisciplinarity as an integration between disciplines.

Klein (1996) claims that integration between disciplinary fields is possible because she puts forward that disciplines are not isolated units of knowledge but have permeable boundaries instead. She challenges the assumption held by some scholars that the boundaries of some disciplines are impermeable (Klein, 1996). Klein's (1996) challenge may address the idea of disciplinary specialization as put forward by Becher (1994) and others. Klein (1996) maintains that while disciplinary specialization and categories may be identified, these, she claims, are not absolute, fixed and immovable. She claims that disciplinary distinctions, such as hard and soft distinctions, are distributed unevenly and is not neatly contained in specific disciplinary domains (Klein, 1996). Klein (1996) makes the point that a disciplinary field which is considered to be hard may have some soft elements in it, and, conversely, a disciplinary field which is considered to be soft in nature may have some harder elements in it. She puts forward that these discrepancies in various disciplines are made possible because permeable boundaries allow for *'borrowing'* across disciplines (Klein, 1996, 2000). This means that interdisciplinarity in academic knowledge is much about disciplinary borrowing through boundaries which may be perceived as permeable. The discussion here has shown that there are many words which can be used to describe interdisciplinarity, 'borrowing' being one of them. I, on the other hand, tend to make use of the word '*blending*', for while there may be a borrowing action in interdisciplinarity, there may be no intention of returning that which has been borrowed. Often, the blending of disciplinary fields would result in a new, hybrid knowledge field, such as those which have been given as examples earlier on, but, in terms of interdisciplinary study programmes, borrowing may sometimes be a more accurate term, because, in an interdisciplinary study programme there may be different disciplinary perspectives that are presented, but it does not necessarily lead to a brand new, hybrid field of knowledge. Either way, interdisciplinary programmes, and also interdisciplinary research, may be motivated by two main purposes, according to Klein (1990, 1996).

One motivation for interdisciplinarity in academic programmes and in research is what Klein (1996) refers to as 'bridge building'. Bridge building happens when certain aspects are borrowed from one discipline and applied to a particular problem which may usually be

handled by another discipline (Klein, 1996). Klein (1990, 1996) asserts that bridge building is easier to implement for it occurs between already existing disciplines, and therefore, is a more common form of interdisciplinary action. It is often aimed at problem-solving, and, is thus, application-oriented. Bridge building, then is more performance-based, and therefore, focuses more on Barnett's (2000) concept of performity (Spelt et al., 2009). The second motivation for interdisciplinarity, on the other hand, is 'restructuring' and Klein (1990) defines this to be a task of creating new, organizing concepts, methodologies and skills which are common to more than one discipline. But, whether the focus is on bridge building or restructuring, curriculum planners and designers may be left with the challenge of how best to incorporate knowledge from different disciplines in a way which would represent all the disciplines involved in an interdisciplinary programme in an equal manner. It may be for this reason that Klein (1996, p. 59) puts forward that "in a hybrid field, one discipline may also have a greater voice". In other words, one discipline may be brought forth in a more dominant manner than another in a study programme. This may tell us much about the way interdisciplinary knowledge is often organized in curricula. However, apart from this, one of the notable objectives of an interdisciplinary curriculum seems to be to foster unity between different knowledge fields so that students can cope with increasing uncertainty and complexity in the working world (Kreber, 2009, Barnett, 2000). There is no doubt that knowledge in interdisciplinary curricula may be organized based on this exact objective, but if disciplinary dominance is more the case, this may mean that there is more of a disciplinary agenda to the organisation of knowledge in interdisciplinary curricula. From this point on, this thesis will now proceed to move on to discuss the organization of knowledge from a curricular perspective.

2.2 Perspectives on higher education curricula

In considering what constitutes curricula in higher education, Barnett and Coate (2005, p. 3) claim that higher education curricula, particularly in the twenty-first century, should be based on three broad elements: "knowing", "acting" and "being", because, for Barnett (2000) appropriate responses to increasing complexities in the world today involve these three elements. Barnett (2000) claims that the reason for this is, that these three elements are found in human individuals when it comes to curricula. Barnett and Coate (2005) contend that a successful curriculum in the twenty-first century will pay equal attention to all three, allowing

for a balanced and coherent interaction between these by deliberately and directly engaging students with three elements in such a way as to foster sustained links between these. They also claim that these three elements should be clearly thought through when designing and planning curricula (Barnett & Coate, 2005). Here, Barnett and Coate (2005) put forward what curricula should contain in the twenty-first century, but they also put forward their view on how higher education curricula should function at any time. They claim that a higher education curriculum functions in two distinct ways, one, as an achievement, and two, as an ongoing task (Ibid). This means that a curriculum can be seen as a final product or result in the teaching and learning arena and as a process that is continually being worked on and developed. Barnett and Coate (2005, p. 3), therefore, distinguish between "*curriculum-as-designed*" (an achievement) and "*curriculum-in-action*" (a task). They go on to claim that curricular design has been frequently understood, without hesitation, to be a task that is primarily about filling in various gaps, such as drawing up teaching schedules and filling, what is assume to be an empty space (Barnett & Coate, 2005). Instead of narrowly assuming a curriculum to be a mere task of filling in what is lacking for the sake of teaching and learning, they suggest that designing curricula should be accepted as designing spaces and activities that could be imagined as those that would most likely generate vigour, potential and inspiration amongst students to triply engage with the elements of knowing, acting and being (Ibid). Curriculum design, then, has much to do with the intention of the curriculum designers (Ibid). Designing curricula, in other words, should take into account how teaching and learning is intended to most effectively engage students with these aspects of knowing, acting and being. Barnett (2000) and Barnett and Coate (2005) seem to put forward that higher education curricula, through these three-dimensional elements, is about responding to the increasing complexity and uncertainty that has arrived so emphatically in the twenty-first century. Other authors, such as Stark and Lattuca (1997) share a different take on higher education curricula. They take a more organisational and categorical approach to curricula.

Stark and Lattuca (1997) assert that attempting to find a proper definition for what a curriculum remains an endeavour that has been proven to be a challenging one. Too often, higher education curricula have commonly and readily been assumed to only consist of a set of courses or experiences that are needed to complete a higher education qualification (Stark & Lattuca, 1997). They present the view that a curriculum in higher education should be seen as an *academic plan*. Stark and Lattuca (1997) believe that an academic plan takes into account that a curriculum has a deliberate planning process which includes planning around

categories like purpose, content, sequence, information about students or learners, the teaching and learning process, resources that are needed for teaching and learning, assessment and notable changes which may affect learning. They add that an academic plan also involves the unplanned, informal procedures which faculty members undertake in the planning process (Ibid). As opposed to others who make use of the term, design, to define curricula, Stark and Lattuca (1997) make a distinction between plan and design, and claim that a plan in the curricula sense, refers to a kind of template or checklist which assists with or directs the decision making process. This includes taking into account both deliberate and unintentional decisions made on a specific aspect of a plan, as well as, whether a default has been chosen (Ibid). They claim that the term, plan, does not necessarily indicate something that it is final or fixed, but can constantly be worked on and improved (Ibid). An academic plan, therefore, is constantly open to change and modification according to policy makers' specific aims and objectives (Ibid). In this regard, Stark and Lattuca (1997) see higher education curricula as flexible from an organisational point of view. They also see an academic plan as a current affair, something that shows how a curriculum may look at any given time, whereas, a design refers to something which has been revised and where a more intentional decision has been made after other alternatives have been considered (Ibid). So, according to Stark and Lattuca (1997), an academic plan captures a curriculum in the here and now, therefore it may be more beneficial to see curriculum not as a design, but as a plan. While they focus on the way curricula is planned in higher education, they, along with other theorists such as Karseth (2006) and Luckett (2009), also view curricula as being informed and shaped by social factors, influences, relations and interests. In fact, Stark and Lattuca (1997) assert that curricula are embedded in particular environments, environments that are shaped and influenced by external and internal social factors. It can be understood that curricula in higher education, in Stark and Lattuca's (1997) view, is not a neutral project, for it is informed and shaped by intentional and unintentional decisions as well as social influences. Higher education curricula then, is not accidental or natural, but is constructed based on these forces, according to Stark and Lattuca (1997), Karseth (2006) and Luckett (2009). Even though, there seems to be some agreement between Stark and Lattuca (1997), Karseth (2006) and Luckett (2009) over the role that social influences play in curricula, Karseth (2006) along with another author puts forward a different view of what higher education curricula is be made of.

Karseth (2006) and Ensor (2004) claim that curricula in higher education are governed by specific discourses which have made their way into higher education curricula today. For the

sake of my discussion here, I will only mention two of them. The first of these discourses they identify is the disciplinary discourse (Karseth, 2006; Ensor, 2004). Curricula that are planned and designed according to this discourse, concentrate on the teaching of disciplinary content (Ibid). The primary aim of the disciplinary discourse in curriculum is for students to learn disciplinary knowledge, and, thus, develop disciplinary understanding. The disciplinary discourse sets out to provide students with a deep understanding of their discipline. So, part of the idea behind the disciplinary discourse entails that students should be apprenticed into specific ways of thinking and understanding, upon which focus is on mastering conceptual structures and modes of argument in the knowledge (Ensor, 2004). A disciplinary curriculum, therefore, sets out to teach students to grasp the internal knowledge structure of their respective discipline (Ibid). This means that students are to grasp its concepts, its logic, and methods and modes of inquiry (Donald, 1986, 2002). Curricula which are governed by the disciplinary discourse may have the appearance of having longer courses which are steeped in the study of a single discipline and are often strictly put together by faculty members, but according to Ensor (2004) and Karseth (2006), this would differ remarkably from the credit accumulation and transfer discourse (or the ECTS discourse), the second discourse that they identify.

The first aspect which stands out in ECTS curricula is that this type of curricula takes on a modularized appearance. Karseth (2006, p. 262) claims that the credit accumulation and transfer discourse entered into higher education curricula with the arrival of the Bologna process, thus, she puts forward that this particular discourse is "the discourse of Bologna". The primary aim of this discourse is portability and transferability, and, because of this, the credit accumulation and transfer discourse allows for interdisciplinarity to take place in curricula (Ensor, 2004). Its modular course structure enables courses from different disciplines to be put into a single curriculum, thereby, allowing for more blended knowledge curricula. Furthermore, this discourse favours a student-centred approach to curricula (Ensor, 2004; Karseth, 2006). This is in complete contrast to the strictly faculty-determined curricula of the disciplinary discourse.

Ensor's (2004) and Karseth's (2006) idea about discourses governing higher education curricula explains the direction in which curricula can in take higher education. It can also tell us about the direction or approach that curriculum developers and planners take when organizing knowledge in curricula. Therefore, the discourse theory on curriculum seems

relevant when considering what a curriculum is essentially made of and how it is organized. As part of exploring this idea of the organization of knowledge in curricula, I will now present the core concepts and analytical framework that this thesis will take in this study.

2.3 Core concepts and analytical framework

As part of my analysis, I will be using three core concepts which pertains much to the discussion that has been held in chapter one and earlier on in this chapter. The first of these concepts is the *organization of knowledge*. This concept essentially refers to the way knowledge in a curriculum has been put together, assembled or arranged. The reason for the use of this concept is that it forms the central point of interest and focus for my study and it provides a more organizational understanding of the way knowledge can appear in a curriculum. The second and third core concepts which will be used are *disciplinarity* and *interdisciplinarity*, and these almost serve to explain how the organization of knowledge can be characterized or typified within a curriculum. They provide a possible, though broad and succinct description of the nature of the academic knowledge that can be found in higher education curricula today. My use of these concepts will be informed by the perspectives of Stark and Lattuca (1997), Becher (1994) and Klein (1990, 1996, 2000). Making use of these core concepts may be useful but only forms part of the analysis for my study, my analysis will not be possible without an appropriate analytical framework which provides categories to identify and analyze specific parts of the curriculum.

As my analytical framework, I have chosen to use Stark and Lattuca's (1997) model of a curriculum as an academic plan, but, more specifically, I have chosen to use five of their categories which are found in their academic plan model as a framework for my analysis of two core courses in my Master programme case study. This framework was chosen because these categories provide a breakdown of the way curriculum can actually be planned (Stark & Lattuca, 1997). These particular categories were chosen because they relate to the concept of the organization of knowledge in more obvious ways. This may then be useful, because, by unpacking curriculum in this way, it may be possible to see in more detail how knowledge in a curriculum has been organised and planned. These categories also allow for specific questions to be directly pinpointed to a specific aspect about the planning and organization process in a curriculum (Ibid). These categories seem to illuminate the way knowledge in a curriculum can be organized, also, possibly bringing to light the ultimate aims and objectives

of a curriculum. The following section will now proceed to briefly explain Stark and Lattuca's (1997) five categories.

The first of Stark and Lattuca's categories (1997) is *purpose*. The category of purpose refers to the intended outcomes and desired goals for a curriculum (Ibid). The second category, *content*, seems to be directly related to the first, according to Stark and Lattuca (1997). They define content to be the specific subject matter that is to be learnt in a curriculum and specifically states that, "subject matter typically must be selected to serve as a vehicle for learning" (Ibid, p. 328). The element of selection here most likely indicates that there is purpose behind the selection process, for, selection in curricula has to be guided by something, whether it is guided by informed interests, educational principles or intended outcomes. Stark and Lattuca (1997) put selection in curricula down to reflect what policy makers and educators believe about the overall purposes of higher education. This, therefore, may show that, according to Stark and Lattuca's (1997) academic plan model, content and purpose may be related categories in some way.

However, Stark and Lattuca (1997) point out that their third category, *sequence*, is also related to the category of content. For, they define sequence as "the ways in which the subject matter is arranged to facilitate the learner's contact with it" (Stark & Lattuca, 1997, p. 328). In other words, it refers to the order or pattern in which content is placed in and it is this order or pattern which enables students to come to grips with the content in a curriculum. One possible way which students are able to come to grips with a curriculum through its sequence is through another of Stark and Lattuca's (1997) categories, *instructional processes*. Stark and Lattuca (1997) define this category as various pedagogical modes and activities which occur during teaching and learning (Ibid). They claim that it is these activities which allow learning to take place. One could say that these are the activities and methods of instruction which would often take place in a classroom context when it comes to teaching and learning. Stark and Lattuca (1997) claim that these play a part in determining learning outcomes, and, therefore, should be included in a curriculum. They point out that some modes and activities are used more in certain disciplines than others (Ibid). They claim that there are instructional processes which take place by default in higher education teaching and learning activities, here they refer particularly to the lecture method of teaching (Ibid). I have placed the categories of sequence and instructional processes together in this thesis, because these seem to be intimately linked in a way that the sequence for a curriculum's content can been seen to

be played out in the way instructional processes are arranged in a curriculum, namely through teaching and instructional schedules. By adhering to teaching schedules, through the attendance of lectures, students are a part of the instructional processes in some way. This leads to the following category that will be used in this analysis, that is, *learners* (Stark and Lattuca, 1997).

Under the category of learners, I will make use of the term, *students* in the thesis, to distinguish higher education learners from school learners, for the term '*students'* seems to be more commonly used in higher education literature and understood to refer to learners in higher education. According to Stark and Lattuca (1997), the category of learners reveals some information about students in a particular programme, that is, this category may reveal some things about the abilities, goals and prior learning and knowledge of the students. Prior learning and knowledge most likely refers to prerequisites or academic admission requirements. In essence, this particular category is about what students will bring to a curriculum, in other words, the prior knowledge, skills, learning and intentions they would bring as students of an academic programme (Stark & Latucca, 1997). Information in this category may also tell us a bit about the possible expectations which curriculum planners may have of prospective students. The category of learners in a curriculum, therefore, may show plainly, the kinds of students who are specifically targeted for a curriculum.

Stark and Lattuca's (1997) academic plan expresses eight categories in all which they believe best describe curriculum in higher education. Above, only five of these categories have been selected for this analysis, because these, in my view, best describe ways in which knowledge can be arranged in higher education curricula. Though this may be the case, these categories do not specifically speak about disciplinary or interdisciplinary knowledge. It will later be shown that these categories are able to be informed by different disciplinary or interdisciplinary discourses, even though they do not directly refer to them. The analysis of my case study will work towards bringing these perspectives together.

This now concludes the explanation of my analytical framework, but this will only start to appear from chapter four onwards. The following chapter will now explain the research methods that were used to conduct the research for this study. Not only will the methods be explained but also the possible strengths and weaknesses which may be associated with them. The research ethics that were involved in the research work for this study will also be discussed in the next chapter.

3 Methodology

The research methodology that was used to conduct this study is entirely qualitative in nature. The reason for this is that, according to Merriam (2009), the fields of education, social work, administration and other social practice fields is primarily concerned with people's everyday lives, and, thus practitioners in these fields are primarily concerned with knowing more about their practice and how they can improve their practice in these respective fields. This seems to be supported by Becher's (1994) idea that was mentioned back in chapter two of this thesis, where Becher (1994) in his classification system of disciplinary fields, puts forward that these fields belong to the *soft, applied* category because they are concerned with enhancing professional practice while their theoretical knowledge is rooted in the soft, pure disciplines of the social sciences. This would mean that Merriam (2009) would consider these as applied social science fields because they focus on the improvement of professional practice, therefore reiterating one of Becher's (1994) categories for disciplinary knowledge. Merriam (2009) reckons that because of this, research questions that would emerge out of these fields are best addressed using qualitative research methods. My choice to use qualitative research methodology in my study on higher education curricula stands firmly on Merriam's (2009) and Becher's (1994) perspectives here, because practitioners and developers in the area of curricula are very much concerned about improving curricula and the way these play out to achieve their desired outcomes (Stark and Lattuca, 1997), thereby, enhancing professional practice. It, therefore, seemed appropriate to conduct a study such as this one, using qualitative research methods.

Furthermore, based on the way these fields have been described and defined by Becher (1994) and Merriam (2009) above, research in the education field tends to be more interpretative, often inquiry is based on *how* something occurs or can be done differently in its natural, situated setting. It seeks to gain insight into how participants view or understand their experience in these settings, thus having a more interpretative and constructivist approach to research (Merriam, 2009). Qualitative research, then, seeks to rather describe the meaning of a social phenomenon, not so much its frequency, and this is where it differs from quantitative research (Merriman, 2009). Qualitative research tends to also be inductive in its approach, meaning that it moves towards building concepts or theory rather than testing theory (Merriman, 2009). My primary research question is concerned with *how* a phenomenon in a social setting occurs, that is, how knowledge in a particular type of curriculum is organized.

For, it was put forward in the previous chapter that the curriculum is a social enterprise which is borne out of a social context, according to Karseth (2006) and Luckett (2009). Additionally, my study will work towards raising further questions in a general sense on that which has been described and how these may apply to similar settings. It is for these reasons also that qualitative methods seem to be more appropriate for my inquiry.

A possible weakness in using qualitative methods is that research that is conducted using these methods is often viewed as being vague, because of its interpretative nature and approach (Merriam, 2009). In other words, it may be difficult to ascribe black and white labels or taxonomies when interpreting findings, but the point of my inquiry is more descriptive and it involves how a particular participant views a phenomenon and the meanings that the participant ascribes to the phenomenon and his/her experience with it, thus providing an interpretive insight into the research for this study. Therefore, qualitative methodology is more appropriate for this particular study of my inquiry rather than quantitative methodology.

Since the use of qualitative research methodology has now been made apparent for this study, it seems fitting at this point to discuss the types of qualitative methods that were used in the research for my inquiry.

3.1 Research design

3.1.1 Case study

The design that the research for my inquiry takes is based on a case study. Merriam (2009, p. 40) defines a case study as "an in-depth description and analysis of a bounded system". Merriam (2009) and Cohen, Manion & Morrison (2007) goes further and defines a bounded system as a single entity or unit which is enclosed by certain boundaries. This unit or single entity is also referred to as a case (Merriam, 2009) and Merriam (2009) points out that a programme could be an example of a case or unit of study. This means that in the context of higher education, a case study could be an academic programme, and, in this case, the case study that I will be using is a particular academic programme, more specifically, the curriculum of an academic programme. A case study focuses on looking at a unit of study in "its real-life context". (Cohen, Manion & Morrison, 2007, p. 254). In other words, it aims to depict "what it is like to be in a particular situation, to catch the close up reality" or, to gain as

well-known anthropologist, Clifford Geertz (1973) referred to as a "thick description" of a phenomena or experience (Cohen, Manion & Morrison, 2007, p. 254). In other words, a case study can also be defined as an in-depth or detailed description of a case. In presenting my case study, I have set out to make a detailed description of a curriculum that is found in a particular academic programme.

Yin (1984, p. 13) puts forward that a case study is usually used when the researcher poses "how" or "why" research questions. The research question that was put forward at the beginning of this thesis is concerned with how knowledge is organized in particular types of curricula. It seemed therefore appropriate to make use of a case study for my inquiry. The kinds of research questions that may be asked also point towards the kinds of case studies which can be used to address these questions. On this note, Yin (2003) presents three distinct kinds of case studies which may be used in a qualitative research inquiry. The first kind of case study, according to Yin (2003) is an exploratory case study. An exploratory case study aims to discover theory by studying or observing a particular phenomenon. In other words, it aims to define questions and possible hypotheses of a particular study (Yin, 2003). The second type of case study which Yin (2003) points to, is a case study which sets out to provide a complete and detailed description of a particular phenomenon within its context (Ibid). This kind of case study is vividly characterized by its descriptive quality, and, hence, it is called the descriptive case study (Ibid). The third type of case study is the causal or explanatory case study (Ibid). This kind of case study seeks to find causal relationships in a phenomenon, in other words, it seeks to find cause-and-effect type of conditions and explanations for certain phenomena (Ibid). Based on these three distinctions which Yin (2003) has put forward, the case study which has been used in my inquiry is a descriptive case study, because, as a substantial part of my analysis, I have set out to describe in detail the curriculum of a particular study programme. Not only that, but moreover, I attempt to address my first research question, and, that is, showing how knowledge has been organized in this particular curriculum through the description that I have put forward in the case study.

A descriptive case study is certainly one kind of case study, but Yin (2003) further distinguishes case studies from each other. This time he distinguishes between a single case study and multiple case studies (Ibid). In a single case study, the researcher only focuses research on one, single case (Ibid). On the other hand, multiple case studies involve the use of two or more cases in the study of the same inquiry (Ibid). My study focuses solely on a single

case and therefore takes the form of a single case study. Much like other research methods, making use of a single case study does have its strengths and weaknesses. Many of these strengths and weaknesses often apply to the use of case studies in research on the whole. These will be discussed in the following section.

A particular strength in using a single case study, as noted by Gerring (2007), is that a single case study provides in-depth knowledge and insight on a particular part and this may allow for a better understanding of a wider, more general situation. Gerring (2007, p. 1) claims that there are times when an in-depth knowledge of an individual case is more useful than superficial knowledge of a larger number of cases, for "we gain a better understanding of the whole by focusing on a key part". A single case study is able to shed light on a larger number of cases which may have some similarities at a particular level (Cohen, Manion & Morrison, 2007). Case studies, and, with that, single case studies, are able to show the reality of a phenomenon in its context (Cohen, Manion & Morrison, 2007). These are also able to show the complexities and subtleties which may be at work in a single case, and with it, a single case study, and case studies in general, are able to show unique features which may be found in a particular case (Ibid). These unique features may enable a deeper understanding of a particular phenomenon (Ibid). However, though its strengths may be brought forth here, at the same time, its weaknesses can be apparent in its method.

One possible disadvantage of using case studies to begin with, is that results are often not easily generalizable (Cohen, Manion & Morrison, 2007). Gerring (2007) puts forward that often in a single case study a unit of study or a case may not be perfectly representative of the situation as a whole. This may be because case studies often bring out the complexities and uniqueness of each case, so, therefore, it may be difficult for results of a single case study to be generalized from one case to another (Cohen, Manion & Morrison, 2007). Also, single case studies may lack the multi-dimensional view that multiple case studies can offer because multiple case studies are able to offer multiple descriptions of the same phenomenon (Yin, 2003). Another weakness which may be seen in case studies is that it may not be easy for case studies to be cross-checked as is often the case with statistical data, and so they are open to bias and may be selective, personal and subjective on the part of the researcher (Ibid). In all honesty, it has been difficult to avoid these potential pitfalls in my own case study research, for, in part, the programme that was selected for this study does come from a place where the researcher has personally selected it and had taken a personal research interest in the

programme. However, “given the variety and complexity of educational purposes and environments”, according to Cohen, Manion and Morrison (2007, p. 256), the single case study in my research may be of some value because it aims to describe and analyze a unique and somewhat complex phenomenon, and, that is a particular curriculum in the field of higher education. It now stands to reason at this point how these strengths and weaknesses could play out in the use of my case study. With this in mind, the case study that was used for my research inquiry and the approach that was taken when handling the selection and data for the analysis will be subsequently discussed in a little more detail.

The case study that will be presented in this thesis will attempt to provide a detailed description of the Environmental and Development Economics (EDEC) Master programme, which has been offered and administered by the Department of Economics at a Norwegian university. As part of the analysis, a description will be made of the whole programme, and two core compulsory courses in the programme will be examined in greater detail. The names of these courses are Environmental Economics (course code, ECON4910) and Development Economics (course code, ECON4915). Investigative and research work done on the case study took place over a twelve-month period, from the beginning of the year 2011 to the beginning of the year 2012. There are a number of reasons why this programme was selected as a case study. One is that the title of the programme suggests that there may be at least three fields of knowledge at work in the programme. This initially appealed to my research interest that was put forward early on in chapter 1 of this thesis. EDEC is also a programme that has had an international study focus, and thus, has been taught in the English language. There has also been much information available in the English language on the EDEC programme on the university’s website, and, this has, therefore, made for easy access to documented sources on the programme. This was important because the documented sources formed an integral part of the research for my study. With this in mind, I now turn the attention toward the research methods that were used for this study.

3.1.2 Case study analytical approach

The term ‘theory’, according to Yin (2003), not only refers to a causal explanation on a particular phenomenon, but it also refers to the design that the steps for the research process takes in a particular inquiry. The design for the research steps in a study is usually based on or informed by existing “literature, policy issues, or other substantive sources” (Yin, 2003, p. 5).

In my case, the design for the research steps has been informed by existing literature, namely that of Stark and Lattuca's (1997) framework of an academic plan and by the previously described perspectives on disciplinarity and interdisciplinarity in chapter two. One way to approach a case study analytically, according Yin (1984, p. 101), is to build "a descriptive framework for organizing the study". In this sense, I have organized the case study according to a descriptive framework that has been put forward by five categories found in Stark and Lattuca's (1997) academic plan, these are: purpose, content, sequence and modes of instruction, and students/learners. Data for the EDEC case study was collected and categorized mainly under these categories, thereby using these as the descriptive structure for my inquiry. Based on this, I have set out to build up a case description for the EDEC programme (Yin, 1984).

3.2 Research methods

Two specific qualitative methods were used for collecting data for my case study. One way was to collect data through document analysis and the other was to collect data through a semi-structured interview. The nature and the possible strengths and weaknesses of each method will be discussed in the following sections.

3.2.1 Document analysis

The first method that was used in the research for this thesis is document analysis. One method which a researcher can use to carry out document analysis is called content analysis. Babbie (1995, p. 306) and Marshall and Rossman (2006) see content analysis as a method which sets out to examine, describe and interpret social artefacts. This means that content analysis may be used to examine documents which come from a social setting (Marshall and Rossman, 2006). I put forward that this may be well suited to the research for my case study because document analysis for my case study is based on documents which have been produced for what can be understood to be a largely social enterprise, which is the curriculum, which was mentioned before in chapter two of this thesis (Luckett, 2009; Karseth, 2006; Stark and Lattuca, 1997). In terms of what content analysis actually entails, Cohen, Manion and Morrison (2007, p. 475) claim that content analysis involves "a strict and systematic set of procedures for the rigorous analysis, examination and verification of the

contents of written data". This means that content analysis involves a set of steps that are taken to analyze and interpret written data.

When conducting documentary analysis and when using the content analysis method, the researcher usually looks at large quantities of texts when doing content analysis (Cohen, Manion & Morrison, 2007). This has been apparent when analyzing the curriculum documents for the case study which I have selected. Texts which may be used for documentary analysis may take the form of either structured or unstructured documents, which may be used for communicative purposes (Ibid). This means that texts for document analysis may include official or unofficial documents from an institution, organization, or person. Furthermore, documentary analysis can be classified as "unobtrusive research", or, as an unobtrusive or non-reactive qualitative research method, according to (Marshall & Rossman, 2006, pp. 108, 124; Babbie, 1995). When doing this kind of research, participants do not need to be directly consulted and the researcher is not intruding in the participant's domain (Marshall & Rossman, 2006). In fact, the researcher is most often invisible to participants in the research (Ibid). Some commentators see this as one of the strengths in this particular research method. However, documentary analysis has a number of strengths and weaknesses, according to some authors. It will prove worth it to bring these up in the discussion, here.

Document analysis does offer some advantages within its method, for one, documents are able to verify titles, names of organizations and correct spellings (Yin, 1984). Documents may also provide other specific details that would corroborate certain information from other sources (Ibid). Written records are rather concrete in nature and so they can be checked and re-checked, and this means that they may possibly increase the level of reliability in a piece of research, compared to other qualitative sources, according to Babbie (1995). This particular research method also has a high degree of safety and security in it, for, if at any time, data is erased, misplaced or eliminated, or if the research investigation is thwarted, it is easier to resume a research investigation using documentary analysis (Babbie, 1995). Research by documentary analysis is unobtrusive and this means that it has no direct effect on the participants or subjects that are being studied and the researcher does not affect the setting in any way (Babbie, 1995; Marshall & Rossman, 2006). This unobtrusive quality may be the greatest strength that documentary analysis has to offer when it comes to conducting

qualitative research, according to Marshall and Rossman (2006). While this may be the case, documentary analysis also presents some weaknesses in its method.

One of the weaknesses in using documentary analysis is that documents on their own have no inherent meaning in research; they need to be interpreted in order to have meaning ascribed to them (Marshall & Rossman, 2006). Therefore, problems may often lie with the way they are interpreted and the subsequent inferences that are made from them (Ibid). When written documents are transcribed, analyzed or sometimes translated, this process involves judgement and interpretation on the part of the researcher, according to Marshall and Rossman (2006), so, in the process of transcribing, analyzing or translating, some original meanings may become lost in translation (Marshall and Rossman, 2006). In this case, the researcher's interpretation of a document may be different to the original meaning that was intended for the document. Also, depending on the documents themselves, written documents, especially official, structured documents, are often processed documents, whereby, the version that the researcher examines has likely been drafted and re-drafted resulting in the final version of the document. Therefore, Yin (1984) puts forward that documents should not be accepted as literal recordings of events, so care should be taken when reading and interpreting them (Yin, 1984). Another weakness that may present itself in document analysis is that documents may be limited, selective, partial, biased, subjective and incomplete based on what their original purposes were (Cohen, Manion & Morrison, 2007). It is also not always possible for written texts to be able to be corroborated (Ibid).

Apart from the weaknesses that may be present in document analysis, Yin (1984) claims that the use of written data is likely to be relevant when it comes to case study research. Therefore, document analysis was chosen as one of the research methods for this case study. In addition, examining written documents is also suitable for curriculum research because curriculum as a social enterprise is usually expressed and stipulated in structured documentary form. It is, therefore, worthwhile for the researcher to look at curriculum documents because curriculum is often solidified and made official when it appears in the form of written documents. The actual documents that were used for my research will be discussed in the next section.

3.2.2 EDEC documents

Official, structured documents were used in the analysis of my inquiry. According to the interview with the programme representative of the Environmental and Development

Economics programme, the online documents which came from the university website were the official documents on the curriculum for the Environmental and Development Economics (EDEC) programme, so therefore, the documents which were analyzed fell into the structured, official category as pointed to by Cohen, Manion and Morrison (2007). Written information that was available on the study plan and curriculum for the programme, course descriptions and course information were collected from the latter half of the year 2011 to the beginning of 2012. However, most of the documents that were used were published in the spring semester of 2011. The primary source that was used to collect these texts was the university website. Written information on EDEC and its courses were made available in the English and Norwegian languages and these were accessed from the departmental web pages of the university website. The documents that were specifically used in my research were as follows:

- Description of the EDEC programme
- Descriptions of the following courses in the programme:
    - Mathematics 3: differential equations, static and dynamic optimization (course code, ECON415)
    - Applied statistics and econometrics (course, ECON4135)
    - Microeconomics (course code, ECON4235)
    - Environmental economics (course code, ECON4910)
    - Development economics (course code, ECON4915)
- For the ECON4910 and ECON4915 courses I was able to find the following material in document form:
    - Prescribed reading lists
    - Teaching schedules for lectures and seminars
    - Lecture notes
    - Supplementary lecture notes
    - Seminar exercises and solutions

- Course readings

These texts were used because it revealed much in written form about what students were learning, the nature of what they are supposed to learn and how the knowledge that has been taught was arranged in these formats.

3.2.3 Document analysis approach and coding

When examining the documents, I took the content analysis approach to working with the textual data as explained by Cohen, Manion and Morrison (2007). This approach involves three steps. Firstly, it entails the coding of data, this means, creating categories into which units of analysis, such as words, phrases or sentences, can be placed (Ibid). Secondly, it involves comparing the categories and making links between them, and, lastly drawing theoretical conclusions from the written text (Ibid).

The process that the document analysis took for this particular case study went as follows. The documents were printed as hard copies from the departmental website so that it would be easier to work with. The documents were then sorted according to course code and title. The documents that were examined were the description and the information on the EDEC programme, and the descriptions of the two core courses: the ECON4910 course (entitled, Environment Economics) and the ECON4915 course (entitled, Development Economics). Upon going through the documents, the textual data was coded using a yellow highlighter and a pencil. Texts that gave information on any kind of disciplinary knowledge on these documents were highlighted in yellow. When reading the documents, particularly the descriptions of the content of the courses, I also looked for any signs or inclinations of interdisciplinarity. In case of this, this would then have been highlighted in a different colour. The rest of the texts were assigned categories or labels to them, by writing in pencil the proposed category next to a particular text. The texts in these documents were written in a structured form, meaning that they were written in paragraph form with headings or categories that were already assigned to them. This made it easier for the researcher to write labels and notes next to them in pencil because they have already been categorized prior to analysis. The categories that were written in pencil served as themes, so, the various blocks of texts could be arranged according to these themes. The themes that were used were: content, goals (purpose), learners/students, assessment, sequencing and disciplinary knowledge. These themes resonated with the categories that are found in Stark and Lattuca's (1997) academic

plan; therefore, these themes were used to code the data. The documents were approached from a thematic point of view, a point of view which was based on Stark and Lattuca's (1997) theory of an academic plan.

While the document sources for this research seemed substantial in volume, a second research method was used together with the document analysis method. The second method that was chosen for this research is the semi-structured face-to-face interview.

3.2.4 A semi-structured interview

A semi-structured face-to-face interview was conducted with the programme representative of the EDEC programme. Rubin and Rubin (1995) put forward that a semi-structured interview is conducted when the researcher wants more specific information, by asking specific questions. In a semi-structured interview, the interview questions are often grouped under specific themes, forming specific sets of questions that the interviewer would ask in the interview (Cohen, Manion & Morrison, 2007; Rubin & Rubin, 1995; Yin, 1984). The semi-structured or focused interview, therefore, is thematic in nature and has a specific focus, whereby questions, being guided by specific themes, are aimed at obtaining responses from a participant(s) on the researcher's research inquiry (Rubin & Rubin, 1995; Merriam, 2009). One of the upsides of doing a semi-structured interview lays precisely in its thematic nature, in that, responses from participants is more specific and to the point than it may be from an unstructured interview (Ibid). One of the downsides of a semi-structured interview is that the interviewer may not receive full or complete responses on participants' feelings or thoughts on particular questions, since the questions are more focused and require more focused, contained responses (Babbie, 1995). However, in this study, the main issue was not to explore the feelings of the participant, but rather, to obtain a richer description of the programme in question. Therefore, questions in a semi-structured interview may precipitate limited responses from participants. There are weaknesses which are found in the interview method in general, weaknesses which may affect the way a semi-structured interview is conducted. One of the weaknesses of the interview method is that the researcher or the interviewer is not neutral, distant or emotionally detached from the interview (Rubin & Rubin, 1995). In other words, the interviewer's sensitivity, empathy, humour and sincerity, as well as the interviewer's personality, attitude, interests, biases and experiences may affect the participant's responses in some way (Ibid). This particular research method may be seen as

being obtrusive or reactive, an exact contrast to the unobtrusive document analysis method that was discussed earlier on. The participants' willingness to respond or their way of responding may depend much on the approach and behaviour of the interviewer. Also, Rubin and Rubin (1995) claim that the interviewer's biases, mood or prior experiences may affect what the interviewer hears and this could affect the way the researcher analyzes the data from the interview negatively. It was mentioned that these weaknesses may affect the interview method in general; it is also worth looking at the other side of the interview method, namely, the particular strengths that it has to offer when conducting qualitative research work.

Qualitative interviews provide opportunities for participants to describe how they understand the world in which they live in and work (Rubin & Rubin, 1995). This provides a possible strength for conducting interviews, because, the interviewer is able to gain some insight and understanding about a participant's work, experiences, lifestyle, beliefs and opinions, depending on what the researcher's inquiry is, from the participant's personal point of view (Rubin & Rubin, 1995; Merriam, 1988). Marshall and Rossman (2006) claim that interviews allow the researcher to understand the meanings that everyday activities hold for the participants. Another strength that may come from conducting interviews is that because the researcher is able to gain some understanding of the participants' experiences, the researcher is somewhat able to reconstruct events which he or she had not actively participated in (Rubin and Rubin, 1995). With this being said, a semi-structured interview with a formal representative of the EDEC programme was selected as a second research method for my study, and, this was done for a number of reasons which will be discussed in the next section.

A semi-structured interview was selected because of its thematic focus. Asking questions according to certain themes would seem appropriate for my first research question on the organization of knowledge in a curriculum, because the themes will be able to show in some way how the knowledge has been characterized in the curriculum of the EDEC programme. Upon conducting an initial analysis of the documents, certain themes, which were informed by Stark and Lattuca's (1997) categories, were chosen for analysis. By placing the interview questions under these themes, it may be possible for the informant to provide more focused responses according to these themes, and, thereby, providing the researcher some understanding on how the informant sees knowledge to be characterized in the curriculum.

Apart from choosing to conduct a semi-structured interview, I also chose to interview one key person who has been instrumental in the development and running of the EDEC programme.

In doing so, I hoped to have someone who has been formally acquainted with the running of the programme express as much of his or her views or thoughts on the programme, and thereby, allowing a key personal voice to provide some insight into the way he or she saw or perceived the programme. Through a semi-structured interview, the informant would be able to express his or her thoughts and views on the programme according to the themes of the interview questions, and, from this, the researcher would obtain some understanding and insight on the informant's experience and work on the EDEC curriculum, as Rubin and Rubin (1995) and Marshall and Rossman (2006) have claimed. Not only that, by asking the questions according to the themes which are guided by the researcher's research question, the researcher would also gain some insight into how the informant sees the way knowledge has been characterized in the EDEC curriculum.

The decision to interview only one person for this study was based on short time constraints that would pose a challenge for completing the fieldwork, data collection and analysis in the allotted time that was given for research on this project, especially since data was also collected and analyzed using the other method of document analysis. Moreover, the person that was interviewed for this study has played an instrumentally key role in putting EDEC together and in convening the running of the programme. In other words, the informant has been operating professionally in a leadership capacity with regards to the EDEC academic programme. In obtaining a personal voice on the programme, I thought it suitable to interview someone who not only knew about the programme, but someone who is at the forefront of the programme's organization and development, and has first-hand knowledge of the day-to-day running of the programme. Marshall and Rossman (2006, p. 105) calls this kind of participant an "elite" and they claim that there are advantages and disadvantages when interviewing an elite person for a qualitative interview.

Marshall and Rossman (2006, p. 105) put forward that "an elite individual is considered to be influential, prominent and/or well-informed in an organization or community". This means that an elite person would often be found in a leadership position or playing some kind of leadership role in a particular field or arena. They go on to say that elites "are selected for interviews on the basis of their expertise in areas that are relevant to the research" (Marshall and Rossman, 2006, p. 105). The informant was selected on the basis of the programme representative's formal position in the programme, and, thereby on the basis of the programme representative's expertise in the development and organization of the programme.

One advantage of interviewing elites is that they are able to provide valuable information because of the formal positions that they hold (Marshall and Rossman, 2006). Another advantage is that even though they may bring forth their own limited and bounded perspectives in an interview, they are able to present an overall view of an organization or its relationship to other organizations (Ibid). A third advantage of interviewing elites is that they are able to provide information on an organization's histories, policies and plans from a particular perspective (Ibid).

There are also some disadvantages to interviewing elites, though, one is that it may be difficult to gain access to an elite individual, because they usually have demanding time constraints due to their position, and it may not be easy to contact them initially (Ibid). A second disadvantage may be that the interviewer may have to adapt the planned interview structure according to what the interviewee wants in the interview. A third disadvantage may be that elites may wish to take charge of the interview because they are used to being in charge in their professional position (Ibid). A final disadvantage of interviewing elites may be that the interviewer has to put forward competence and credibility by showing knowledge of the topic, or, if this is not possible, then the interviewer has to put forward an accurate conceptualization of the problem by asking thoughtful and insightful questions (Ibid). This can be quite demanding on the part of the interviewer (Ibid). Despite these disadvantages, it was the strengths that mostly outweighed the weaknesses when it came to conducting the interview with the EDEC programme representative. These appeared in the way that the interview was set up and in the interview process itself.

3.2.5 The interview process

In order to set up an interview with the programme representative, I at first searched on the department's web pages for the contact details of the relevant person to be contacted about the programme. After finding the relevant details, I initially sent an e-mail correspondence to the relevant person, but after waiting a few days, I received no further correspondence in reply. I then proceeded to go personally to the Economics department and inquired with the administrator on whom to contact regarding the programme so that an interview I could be set up. It had turned out that I had initially contacted an individual who was no longer involved with the EDEC programme. I then received the contact details of the programme representative from the administrator. Through our brief conversational exchange, the

administrator informally gave me some brief information on the background of the EDEC programme. Upon e-mailing the programme representative and briefly explaining my research endeavour, and subsequently, requesting an interview in the e-mail, the programme representative promptly replied to my e-mail message and agreed to participate in an interview. The programme representative suggested a suitable day and time for the interview, and, an appointment for the interview was set up upon my reply to the programme representative's e-mail, which confirmed the appointment for the interview. Even though I did not make immediate contact with the programme representative initially, it did not take long and it was relatively easy to establish contact with the programme representative. Also, at no point in the interview, did the programme representative attempt to take control of the interview, even though, I, as the interviewer, sensed the need to keep the interview strictly within the allotted time frame because of the programme representative's busy schedule.

The whole interview was conducted in the English language and for the duration of one hour. Prior to the interview, an interview guide was developed, whereby a set of questions which were seen to be related to my thesis topic were, at first, brain-stormed and jotted down on paper in no particular order. This formed the first draft of the interview guide and was shown to the supervisor of this thesis. After a constructive feedback session, a second draft of the interview guide was drawn up, but, this time, the questions were divided according to certain themes that seemed appropriate to the thesis topic. This was then sent to the supervisor for reviewing. Also in the second feedback session, after the supervisor's approval, the second draft of the interview guide became the final version that was used for the interview. Some more reflections and details will now subsequently be provided about the interview guide.

The interview guide reflects my research interests and analysis in two ways. One is that the interview guide reflects my research interests in the way that some of the questions deal with the way knowledge can be organized according to disciplinary fields or interdisciplinary fields. Secondly, it also reflects my analysis in the way that most of the questions can be appropriately linked to the categories found in Stark and Lattuca's (1997) academic plan. The interview guide, in this way, follows somewhat similar ideas to that which is expressed in their concept of an academic plan. The categories or themes in the interview, though not the same, may resonate with those in the academic plan put forward by Stark and Lattuca (1997). At this point, I consider it worth mentioning what the interview guide was made up of.

The interview guide consisted of thirty-one questions and six themes. Each question was placed under a theme that was thought to be most suitable for it. The themes on the interview guide were: background and general aims, interdisciplinarity and disciplines, focus, knowledge, assessment and changes. These themes were chosen because they bear similarities to and seem to resonate with at least four of Stark and Lattuca's academic plan categories, which are: purpose, content, evaluation and adjustment. This would enable the questions in the interview to have a specific direction and schema according to the research question that was put forward in this thesis. Therefore, the six themes in the interview guide may be able to bring forth input on the research question. The way this could be achieved is by using these six themes to hone in on specific aspects of knowledge organization in a curriculum.

In the actual interview, data was recorded by means of a recording device called a Dictaphone. Apart from note taking, data in an interview can also be recorded by means of a recording device such as a tape recorder or a Dictaphone (Merriam, 1988). Prior to the interview, the programme representative was informed by means of an interview consent form that the interview would be recorded. Upon signing the consent form, the programme representative had given permission to have the interview recorded. Yin (1984) asserts that a recording device should not be used when the interviewee has not consented to having the interview recorded or if the interviewee expresses that he or she is uncomfortable being recorded in the interview. Thus, permission from the programme representative was vital for recording the data in the interview. This adheres to the general standards and ethics which have been set for research ethics in the area of social research. Research ethics will be discussed in a bit more detail later on in this chapter.

3.2.6 Interview data analysis approach

Upon obtaining the data that was recorded on the Dictaphone, the spoken data was then transcribed into written form. This was needed for proper analysis of the data. When transcribing the data, there was a challenge in transcribing some words because the programme representative is not a mother-tongue English speaker. This was dealt with by replaying the respective responses multiple times until it could be clearly deciphered. After transcribing the data, the programme representative's responses were sorted according to certain labels or themes which were assigned to them. Each theme was assigned a different colour and based on this, the programme representative's responses were then colour-coded,

to show each theme. The themes and colours that were used to code the data were: bold red for disciplinary knowledge (methods, theory and specialization), bold green for students, bold blue for purpose/outcomes, bold purple for evaluation/assessment, light blue for changes/adjustments. Black was left for the colour of the interview questions and bold black was used to highlight the questions that were asked directly on these themes. The transcription and the coding of the data were all done using a personal computer.

According to some authors, the coding of interview data is an important step that is taken when analysis of the data is done (Marshall and Rossman, 2006; Rubin and Rubin, 1995; Cohen, Manion & Morrison, 2007). According to Marshall and Rossman (2006), the researcher may apply a coding scheme to the various themes that the researcher has selected for the in the coding process. The researcher then marks passages in the data using the coding scheme (Ibid). Coding may take various forms; the researcher makes the choice how to code the data (Ibid). I chose to highlight different themes with different colours. Once the data has been coded, the researcher then proceeds to make connections and establish relationships or patterns in the coded data (Ibid). This took place once the data in the interview transcription was coded. At this stage, I proceeded to look at the frequency of each theme and then began to establish a relationship or an association between the response of the programme representative to a specific theme, as well as a relationship between themes. For example, if the theme of disciplinary knowledge frequently came up in the data, the relationship or association that would be established is how the programme representative saw disciplinary knowledge in the programme, or, the specific kind of disciplinary knowledge that is found in the programme according to the responses of programme representative. A relationship or association would also be established between disciplinary knowledge and students in the programme. From here, these relationships could then be described and interpreted, whereby, the researcher is able to "tell the story", as Marshall and Rossman (2006, p. 161), put it, bringing meaning and coherence to themes and patterns of the data.

While the informant's most forthcoming responses on specific aspects for the EDEC curriculum was what was hoped for in the interview, a forthcoming response from the informant was not going to be entirely achieved without an assurance of full anonymity. The way the interviewer has dealt with the issue of anonymity in the thesis will now be explained in more detail.

3.2.7 Research ethics, anonymity and confidentiality

There are, in particular, three points to consider when it comes to adhering to research ethics in qualitative research. The first is that the participant should not be pressured or coerced into taking part in the research. In other words, participants should participate voluntarily in the research (Cohen, Manion & Morrison, 2007). This is understood to be informed consent. In my study, this was demonstrated through the informant signing a letter of consent that informed the informant of his or her voluntary contribution to the interview. The second and third points are especially relevant for conducting interviews and this is the assurance of confidentiality and anonymity (Ibid). Merriam (1988) puts forward that confidentiality in the research process means that, even though the researcher may know the identity of the participant, that they in no way make known the participant's identity publicly. One way that the researcher could do this is to refer to the participant using general and vague titles, making no connection of the participant's identity known (Merriam, 1988). This is closely related to the third point which is anonymity. By ensuring anonymity, the participant's identity cannot be recognized from the information in the research (Merriam, 1988).

At the time of drawing up the second draft of the interview guide, upon the supervisor's advice, a first draft of an interview consent form was also drawn up and sent to the supervisor for feedback. It was explained that a letter of consent was needed so that the research for my study could abide by the rules, regulations and ethics which had been stipulated by the Personal Data Act and the Norwegian Ombudsman for Research, presiding over the field of research and research ethics. A second feedback session with the supervisor was subsequently held and a final version of the interview consent form was developed.

To assure confidentiality and anonymity in the thesis, the respondent's name has not been mentioned at any point in the thesis. The title, '*programme representative'*, has been used in the thesis to refer to the respondent. This title is not the informant's official professional title; rather, it refers to the informant's professional position in the programme in some informed way, but, at the same time, concealing the informant's identity. The programme representative is a formal representative of the programme and holds a formal position regarding the leadership and administration of the programme. Despite the concealment of the programme representative's identity in the thesis this way, the anonymity of the respondent was further assured by having the respondent sign a letter of consent for the interview.

The letter of consent, also referred to as the interview consent form, served as a written form to request permission from the informant to participate in the interview. The interview consent form explained the topic of my thesis and the purpose of the research project that would accompany it. The research methodology for the thesis was also put forward in the form, as well as, the rationale for conducting the interview with programme representative. The interview consent form stated clearly that the EDEC programme will be used as a case study and the reason for using EDEC as a case study was also stated in the form. It was stated in the form that the interview would only be used for the purpose of this research and that the information garnered in the interview would be handled according to the Norwegian Personal Data Act. Since anonymity was established from the start of the research process, at no point in the interview process, or, at any point thereafter, was any of the respondent's personal information stored, and, because of this, this project did not require a letter from the Norwegian Ombudsman, as is the case when personal data of the respondent is registered and stored by the researcher. Based on this early anonymity in the project, it was stated that neither the programme representative's name nor the name of the university where the programme is run, would be mentioned in the thesis, but the name of the programme would be mentioned. The form also made clear that the interview would be recorded. The name and contact details of the interviewer and the interviewer's supervisor was then provided in the form in case of the programme representative possibly having further questions and needing clarity on anything about the research for the thesis. Upon signing the form, it was stated that the respondent provided the interviewer permission to carry out the interview and to participate in the project. The consent form, as well as, the decision to not make use of the respondent's name and university in the thesis all formed part of what can be seen as standard procedure for the semi-structured interview research method.

Since the semi-structured interview was used together with the document analysis method of collecting data, it appears that the technique of triangulation was used in the research. This will now be explained further in the following section.

3.2.8 Triangulation

The research that was done for this study relies on the combination of data from the two distinct qualitative methods which were discussed earlier, namely, document analysis and the semi-structured interview. This means that research for my study has made use of

triangulation, because, according to Marshall and Rossman (2006) and Cohen, Manion and Morrison (2007), a researcher has made use of triangulation if he or she has used more than one method of data collection. Merriam (1988) puts forward that triangulation involves the use of dissimilar ways to collect data on a single phenomenon or case, for example, data may be collected from conducting interviews, observations or examining some forms of physical evidence. For my own study, I have gathered data from two dissimilar methods, namely from document analysis and a semi-structured interview. Cohen, Manion and Morrison (2007) puts forward that there are different types of triangulation. The type of triangulation that has been used in my case study is called methodological triangulation. Methodological triangulation involves the use of "different methods on the same object of study" (Cohen, Manion & Morrison, 2007, p. 142) Merriam (1988) asserts that a case study allows for the use of triangulation and this is a considerable strength of using case studies when conducting research.

There are a few benefits when it comes to making use of triangulation in research, according to Marshall and Rossman (2006) and Merriam (1988). One is that, it may enhance the generalizability of a study, because more than one method of data collection is able to strengthen a study's usefulness for other settings (Marshall & Rossman, 2006). Another advantage of using triangulation is that different sources of data is able to corroborate, elaborate, or even illuminate the researcher's research question(s) (Ibid). Also, one source of data can be supplementary to another, in that the weaknesses of one method can be strengths of another and this may possibly enable the filling of gaps where data may prove to be incomplete when coming from one method of data collection only.

It is possible that triangulation, through these strengths, may provide ways to strengthen the credibility of the research methodology for a particular inquiry. This point particularly points to the aspects of reliability and validity in a research inquiry. These two aspects will now be further discussed in the following section.

3.2.9 Reliability and validity

Yin (1984) asserts that when doing a case study, four aspects of the research design has to be maximized in order to ensure the quality of the design. These four aspects cover two important aspects of quality in a research design, and these are reliability and validity. Reliability in research methodology refers to the controllability, predictability, consistency

and the replicability of the data, findings and instrumentation that are used in the methodology (Cohen, Manion & Morrison, 2007). It essentially refers to the credibility or the trustworthiness of a piece of research (Ibid). The trustworthiness or credibility is tested by looking at whether research on a particular study can be repeated, and, whether results are consistent and can be predicted when the research for the study is repeated (Ibid). Efforts were made to strengthen reliability in this particular study by having the interview tape recorded so that the researcher could refer back and forth to it if the researcher initially found something to be unclear in the interview data. Another effort that was made to strengthen the reliability in the research for this study is that the interview provided an opportunity to double-check if the interviewer understood what the informant was saying in the interview. The interviewer has done this by asking 'checking' questions in the interview itself, questions such as "If I understood you correctly…" were frequently asked, or the interviewer would repeat what the respondent has said, or, would repeat some of the questions so that the respondent could confirm or correct his or her responses in the interview. The tape recorded data and the asking of 'checking' questions acted as checking mechanisms for the data. Checking mechanisms were not only limited to the interview data for this study, but was also used for the written data as well. This occurred when the respondent was asked if any other official documents were available on the programme's curriculum, the respondent replied with the words, "it's all available on the web" (EDEC programme representative, personal communication, April 1, 2011). This means that all the document sources, including those mentioned earlier on, on EDEC's academic plan, are all available online, on the university's website for checking and referral. The online accessibility of the curriculum documents creates a sense of transparency, and, therefore, adds to the reliability of the research done for this thesis. The checking mechanisms used for the interview and written data provide some form of control over the way the data can be described and interpreted. In other words, data may only be described and interpreted within the parameters that the checking mechanisms allow. These checking mechanisms make it difficult for data to be described and interpreted outside of what was actually said in the interview or what was stated in the written documents. In this sense, efforts to strengthen the reliability in this analysis were made because these checking mechanisms acted as ways to control the way data has been described and interpreted.

While reliability may refer to the replicability, consistency and predictability of results; validity, on the other hand, "refers to the extent to which an empirical measure adequately

reflects the real meaning of the concept under consideration" (Babbie, 1995, p. 127). In other words, validity refers to the way findings in the research reflect that which is happening in reality. It is tested by looking at how accurately findings represent reality. Yin (1984) and Cohen, Manion and Morrison (2007) put forward five different kinds of validity which may be relevant for my study.

The first kind of validity, internal validity, seeks to have the findings describe as accurately as possible the phenomenon that is being studied (Cohen, Manion & Morrison, 2007). It measures whether an explanation that is provided by the research can be fully sustained by the data (Ibid). Internal validity focuses on establishing accurate causal relationships in the research. The second form of validity is external validity and this is based on the degree to which results are able to be generalized to a wider range of situations, cases and populations (Cohen, Manion & Morrison, 2007). External validity focuses on the generalizability of the findings (Yin, 1984). Construct validity, the third form of validity, looks at whether the researcher's understanding of a concept is similar to that which is generally understood and accepted to be the concept (Cohen, Manion & Morrison, 2007). In other words, it looks at whether the instruments were used correctly to articulate the concept (Yin, 1984). The next form of validity is concurrent validity and this form of validity is criterion-related (Ibid). The aim of concurrent validity is to show that data collected by means of one method correlates highly with data that has been collected from another method (Ibid). The final form of validity that will be mentioned here is descriptive validity. Descriptive validity is focused on the factual accuracy of that which is being described or reported, it includes aspects of reliability in it (Ibid). At this point, I now go on to describe the ways that were used to strengthen the validity of this analysis for this particularly study.

The combination of using document analysis and a semi-structured interview would serve to increase the validity in the following ways. One is that it corroborates information from two sources of data (Yin, 1984). By combining these two data sources in a corroborative ways, this would help in the effort to strengthening validity, particularly helping in the effort to strengthening concurrent validity in this analysis. Though, the two data sources may corroborate and confirm some information from the data, at the same time, the data from both sources are used to explore somewhat different aspects of my research question, in the sense that the interview data provides explanations, considerations and experiences from the programme representative, on aspects of the research question that the written data does not.

Another way that the two sources of data are able to explore different aspects of my research question is that the textual data reveals the programme's academic plan in a formal, written form. The texts show a more black and white perspective on what has formally and officially been decided upon for the curriculum of the programme. From this perspective, the online textual data were the only written sources that were available on the EDEC curriculum, so the written data may provide information that may resemble "cold, hard facts" on what the curriculum planners and developers envisaged for the EDEC academic plan. Data from the interview, on the other hand, allows the researcher to see the perspective of someone who is formally associated with the programme, and is, therefore, well-informed on the EDEC curriculum, so, because of the informant's position, the researcher is able to obtain rich information about the programme. In this way, the responses from the informant may reveal some insights about the programme that the texts may not.

In terms of the other types of validity that was mentioned earlier on, it is difficult to show external validity in this research because my inquiry is based on one unique case study and so generalizations from this analysis is not possible. This is where a possible limitation can be found in the research for this particular study, that is, that it only focuses on one single case study, limiting the generalizability of results considerably. In fact, Cohen, Manion and Morrison (2007) put forward that results from case studies are not easily generalizable. However, through this unique case study, it is possible to generalize some aspects which were found towards theory about disciplinarity and interdisciplinarity. This study, therefore, invites readers to make judgements for themselves about how processes and aspects, which were described in the programme, have relevance for other courses and programmes they may be involved in. This study can help to raise questions on how curricula for other blended knowledge programmes are organized. To determine internal validity, the researcher had identified relationships in the coded data between the documentary information and appropriate themes, and, between the interview responses and the themes that were assigned to them in the coded data from the interview transcription and the textual data. In terms of strengthening construct validity, I have strived to strengthen this kind of validity by basing key concepts on theoretical perspectives that were taken from existing literature and by using them in line with the understanding of them that were presented back in chapter two of this thesis. The concepts were used in accordance with the theoretical understandings of them that were put forward by the existing literature on the subject. Descriptive validity has been achieved largely by means of the document analysis. The description of the case study is

based almost entirely on online documents which can be checked easily if any doubt does occur. On few occasions, the interview data confirmed already that which was in the documents. Here again, the triangulation method that was employed for this case study, has worked towards strengthening the validity, more specifically it has worked towards strengthening the descriptive validity of this study.

3.3 Summary

In closing, this chapter has explained the research methodologies that were used in investigating the research question that was put forward in chapter one of this thesis. It was put forward that the research design that this study takes is a case study which focuses on interpreting and describing a particular phenomenon, the organization of knowledge in curriculum. It was also mentioned that research for this study has made use of triangulation, thereby making use of different data collection methods, and this has aimed to establish a higher degree of validity and reliability in the research. Data from the written documents and the interview was approached from a thematic point of view, largely informed and guided by the Stark and Lattuca's (1997) categories found in their theory of a curriculum as an academic plan. Since the research methodology had been discussed in detail, this chapter now leaves room for mentioning what can be expected in the chapters following on from this. So, in proceeding on from here, chapter four will present an overall description of EDEC and its two core courses, ECON4910 and ECON4915, based on the textual information. Thereafter, a more in-depth analysis on the ECON4910 and ECON4915 courses will be done in chapter five using more of the interview data, according to Stark and Lattuca's (1997) five categories that are found in their academic plan model. Stark and Lattuca's (1997) categories will be used as the main framework in describing the knowledge that is found in the EDEC curriculum, but Becher's (1994) hard, soft, pure, applied categories will be used to describe the nature of the knowledge that is found in the curriculum. Analysis in the following chapters will be organized in two steps. The first step is that chapter four primarily will make use of the Stark and Lattuca's (1997) framework to obtain a description of the programme and the selected courses, while the second step will consist of perspectives on disciplinarity and interdisciplinarity which will be utilized in chapter five.

4 The curriculum for the EDEC programme: a description

4.1 Brief history

I will start off this chapter by first providing a brief history of the EDEC programme based on the online curricular texts (Environmental and development economics, 2011), the interview with the programme representative that was conducted on April 1st, 2011, and, based on an e-mail correspondence between the programme representative and myself, which took place on December 6th, 2011. The EDEC programme had been running since 2003, with foreign students forming a large contingent of the programme since its inception. The programme initially came about at a time when more and more international students began to undertake their studies in Norway through various international exchange programmes, and, at the same, a link between environmental awareness and developing countries was becoming a topical issue for the department's affiliate organizations who called for more accountability on the department's various projects that were taking place in some developing countries at the time. It is at this point, that one of the programme representative's colleagues, who had strong research interests in the area of Environmental Economics, began to develop Environmental Economics into a notable research area for the department. For this reason, a Master programme which would incorporate studies on economics and natural resources, economics and the environment, and, economics and development was set up. Faculty members involved in setting up the programme hoped to generate interest from students who were coming from developing countries to study in Norway since this research area has mostly been concentrated on the developing world. To date, EDEC was one of the first study programmes at the university to teach courses in the English language. With its brief history explained, I now move on to provide a general description of the programme in the next section.

4.2 Presenting the case

The general structure of the curriculum consists of nine courses in total, with ten credit points earned upon completion of each course (Structure and accomplishment, 2011). The duration of the programme takes place over two years of study. If the EDEC programme could be seen

in a more diagrammatical way, based on the document sources, it would appear in the following way, shown here in Table 1:

4. Semester	Thesis		ECON4000
3. Semester	Thesis	ECON4925	ECON4000
2. Semester	ECON4910/ECON4925	ECON4000	ECON4000
1. Semester	ECON4145	ECON4135	ECON4235

Table 1 is taken from the following online document source, *Structure and accomplishment* (2011). Retrieved August 25, 2011, from http:www.uio.no/english/studies/programmes/envdevec-master/oppbygging/

The first semester of the programme is made up of three compulsory courses with a total value of thirty points upon completion. These courses focused on post-Bachelors level mathematics, more specifically, on calculus, nonlinear programming, optimal control theory, regression analysis theory and microeconomic theory (ECON4145, 2011; ECON4135, 2011; ECON4235, 2011). These courses are entitled as follows: *Mathematics 3: Differential equations, static and dynamic optimization* (course code, ECON4145), *Applied Statistics and Econometrics* (course code, ECON4135), *Microeconomic Theory* (course code, ECON4235) (Structure and accomplishment, 2011; ECON4145, 2011; ECON4135, 2011; ECON4235, 2011). According to the programme representative, these courses were entry-level or foundational courses for the programme (EDEC programme representative, personal communication, April 1, 2011). The programme representative commented further in the interview that if students failed any one of these of these three courses, they would only be given one more attempt at the beginning of the following semester to pass them (Ibid). Students were required to be concurrently registered for all three of the courses in the first semester.

The second semester brings forth elements of course selection flexibility, in that; students are given a bit more freedom to choose courses but within limited means. Students can opt to do either two further compulsory courses along with one optional course, or, they can choose to do only one of them for the semester together with two optional courses. The two compulsory courses that are stipulated for this particular semester are: *Environmental Economics* (course

code, ECON4910), within which students look at how economic theory may be applied to environmental issues, and, *Development Economics* (course code, ECON4915), whereby students learn how issues in development, namely, the causes and effects of poverty, can be addressed by economic theory (ECON4910, 2011; ECON4915, 2011). As part of the optional course component for the second semester, students are required to select courses from a list of 67 courses which are taught in the English language (Structure and accomplishment, 2011; Courses in economics, 2011). The optional courses are mostly made up of economic theory and economic subject matter, but there are a few which deals with different subject matter, such as international trade and finance (Courses in economics, 2011). These optional courses all have their own individual course codes, titles and descriptions, but they have all been placed under one heading in the programme, and that heading is *ECON4000* (Structure and accomplishment, 2011; Courses in economics, 2011).

In the third semester, students were required to do a fifth compulsory course if they had not chosen to do both ECON4910 and ECON4915 in the second semester (Structure and accomplishment, 2011). This compulsory course, offered in the third semester and entitled, *Resource Economics* (course code, ECON4925), teaches theories on oil, gas, hydropower, and forestry and fishing, and optimality and policy, as well as, institutional aspects of these resources which are considered of pivotal importance in the course (ECON4925, 2011). Students in the third semester of the programme also have to do a further optional course under ECON4000, but are also required to begin work on their theses at the same time (Structure and accomplishment, 2011).

The fourth semester is made up of a larger component of thesis work, because the semester is split between the thesis component and an optional ECON4000 course (Structure and accomplishment, 2011). While working on their theses, students are required to do an optional course in the programme (Ibid). Students are also required to complete their theses and submit it by the stipulated deadline within the fourth semester, although, the documents state that there are alternative submission deadlines that are given three times a year in case students do not manage to submit their theses in the fourth semester (Structure and accomplishment, 2011; Learning outcomes, 2011). At the end of the semester, students also have to take an oral exam which is not only based on their theses, but also on topics and issues that are related to the courses in the programme (Structure and accomplishment, 2011).

As part of presenting the case for the structure and organization of the courses in the programme, it would also be useful to include the methods or modes of instruction that is found in the programme. Most of the data on modes of instruction have been taken from the two core courses in the programme, ECON4910 and ECON4915, courses which were chosen for the analytical work of this thesis. So, as part of the presentation of the case, I now move on to describe briefly the modes of instruction for ECON4910 and ECON4915.

4.2.1 Modes of instruction: ECON4910 and ECON4915

In both core courses, ECON4910 and ECON4915, instruction occurs in two distinct ways (ECON4910, 2011; ECON4915, 2011). One way is that instruction occurred by means of lectures. According to the teaching schedules for the courses, students had to attend thirteen lectures in total for each course (Schedule ECON4910, 2011; Schedule ECON4915, 2011). Lectures are normally held for two hours and fifteen minutes once a week (ECON4910, 2011). Seminars, the second mode of instruction for the courses, are also of the same duration, but students, according to the courses' teaching schedules, are required to attend two seminars per week (ECON4910, 2011; ECON4915, 2011). Seminars differ from lectures, in a sense that, in seminars, students are required to work on seminar problems and complete seminar exercises (Teaching and examinations, 2011). The exercises usually took the form of complex mathematical problems relating to the material that had been taught in lectures and analytical questions on topics in the course (ECON4910 seminar exercises, 2011; ECON4915 seminar problems, 2011). It seems that these exercises and problems not only teaches students in hands-on way how to work with the analytical methods in the course, but these may also serve to prepare them for various assessment tasks, such as exams or tests which takes place towards the end of the course. The nature of these assessment tasks for students will now be briefly mentioned in the next section.

4.2.2 Assessment: ECON4910 and ECON4915

In keeping with two courses that will be used for analysis, I have considered the way assessment is done for these courses. The document sources and the interview with the programme representative make known that the primary method of assessment for these two courses is a three-hour examination, written at the end of each course (Time and place for examination/evaluation, 2011; EDEC programme representative, personal communication,

April 1, 2011). Students then would receive a grade for the course examinations, according to the grading scale that is used by the university (Grading system, 2011). Upon receiving their grade, students are able to view their grade for the exam by logging on to an online student portal, on the university website (Examinations, 2011). The document sources show that examinations for courses are subjected to a grading scale, whereby letters of the alphabet represent assessment values which measures the quality of students' work in examinations (Grading system, 2011). The assessment values given for grades comprises of letter grades which range from A to F (Ibid). According to the documents, grades are assigned to evaluate students' critical and independent thinking skills, as well as, how well they understand the subject matter of the course (Ibid). Apart from the course examinations, it was mentioned earlier that students also have to take an oral exam for their thesis work and on the topics that are presented in the course, but not much information has made been available on this assessment task in the documents and in the interview. However, the documents do make known that for the ECON4910 course, students are also required to work on a voluntary term paper which is based on a past exam paper that was given in the spring semester of 2010 (ECON4910 spring 2011, 2011; ECON4910 lecture 5, 2011). Students do not receive a grade for the voluntary term paper, but have to work in partnership with other students in the course and are required to give feedback in class on the work that they have done on it (Partners for voluntary term paper, 2011; ECON4910 lecture 5, 2011). As for the ECON4915, other specific forms of assessment have not been made known in the documents or in the interview, but, the documents do mention that students are trained, and, thus required, to carry out written and oral presentations for the seminar component of the course, though it was not mentioned that they would be graded on these (ECON4915, 2011).

4.2.3 Summary of the case study

In summary, the EDEC case consists of five compulsory courses and four optional courses. Out of the programme's courses, ECON4910 and ECON4915, form two of the programme's core compulsory courses. The primary modes of instruction in these courses are lectures and seminars, and the primary assessment practice for these two courses is the course examination that students are required to write at the end of each course. In light of the overall picture of EDEC's courses, Table 1 shows that course selection flexibility increases from the second semester onwards. Also, coursework takes place throughout the programme, whereas, thesis work only takes place over the third and fourth semesters. Even though the thesis component

is much smaller compared to the coursework component in the programme, the Master thesis is regarded as a compulsory, and therefore, an essential part of the programme (Master's degree, 2012). The departmental web page puts forward that the thesis component is important because it provides a comprehensive basis for further specialization into the subject of Environmental and Development Economics (Learning outcomes, 2011). Though, the importance of the Master thesis, with its specialist, research focus, cannot be downplayed, coursework does occur more than thesis work in the programme. From here the thesis will now describe ECON4910 and ECON4915, the programme's two core courses, according to Stark and Lattuca's (1997) categories which may reflect the concept of the organization of knowledge in more obvious ways.

4.3 Purpose

4.3.1 ECON4910

The ECON4910 lecture notes present two learning outcomes for the course (ECON4910 Lecture 1, 2011). One is that students were to receive an "intuitive understanding of results and mechanisms" (Ibid, p. 4). This particular outcome reflects the type of knowledge that is intended for students to learn in the course. Students are to be able to understand and instinctively identify results of certain policy implementations and their respective mechanisms when these are applied to environmental issues. Apart from achieving this kind of understanding, as a second learning outcome, students are to be able "to use economic methodology to analyze environmental issues" (Ibid). To achieve this outcome in the course, this means that students are to receive training in economic methodology, and, based on this, they are to use what they have learnt to analyze environmental issues. This outcome reflects a type of skill that the course intends for students to receive. The curriculum documents also present learning outcomes similarly to that of the lecture notes, and just like the lecture notes, the documents also reflect and specifically mention that learning outcomes for the course are placed in two separate categories, knowledge outcomes and skills outcomes (ECON4910, 2011).

Under knowledge outcomes, students are to receive "systematic analysis of environmental issues using microeconomic theory" (Ibid). In other words, students are to learn to look at environmental issues through a microeconomic lens. Students are also to receive "an

introduction to analyses of environmental policy instruments" with emphasis placed "on situations with uncertainty and/or asymmetric information and on situations with other market failures" (Ibid). This entails that there would be emphasis placed situations or issues which are considered to be unpredictable, complex and challenging for finding solutions. Under skills outcomes, the curriculum documents put forward that students are to receive a good overview of key concepts in environmental economics and a good overview of economic issues that are related to a wide range of environmental problems (Ibid). Students are also to receive a good understanding of basic theory in the field of environmental economics and they are to be able to read and present articles about topics that are presented in the course (Ibid). Also, students are required to conduct analytical studies on specific environmental problems, having the ability to make use of appropriate models as part of their analytical work (Ibid).

The lecture notes and documents show that the purpose for the course is two-fold. One is, mainly that, students are to receive good, comprehensive knowledge and understanding on economic theory and how it relates to environmental issues. The other main purpose is that students are to receive the skill or ability to use economic theory to analyze specific environmental problems or issues. The purposes for the course are mostly guided by two distinct camps of outcomes, knowledge and skills. This same guiding and two-fold purpose can be found for the outcomes of ECON4915, as we shall see in the following section.

4.3.2 ECON4915

Under knowledge outcomes for this course, students are to receive understanding and insight into the gross differences in incomes which exists between countries and people, as well as, the reasons for these differences (ECON4915, 2011). They are to gain knowledge of a variety of theoretical models and mechanisms which deal with issues that are central to the course (Ibid). Also, students are to have sound knowledge of arguments pertaining to poverty and development issues, and be well acquainted with relevant empirical research on issues pertaining to poverty and development (Ibid). As part of the skills outcomes for the course, the documents put forward that students are to have a good grasp of theoretical models that are used to analyze issues in development (Ibid). They should also be able to identify and discuss aspects such as policy implications, as well as, have the ability to critically determine the quality and relevance of empirical research done on topics presented in the course.

The two-fold purpose for the ECON4915 course, firstly, deals with having an understanding of issues that are presented in the subject matter of the course and of different or contrasting perspectives on these issues. Secondly, it deals with the ability to make use of theoretical models in the analysis of development issues, and the ability to critically evaluate empirical research that has been done on issues pertaining to the field of development. It seems that the purpose for both courses mainly concentrates on providing an understanding about the subject matter, but the category of purpose does not explain the subject matter itself, only what is expected as intended outcomes for the subject matter. From here, it will now be useful to look at the subject matter or content for both courses.

4.4 Content

4.4.1 ECON4910

The course content of ECON4910 emphasizes three main points that the subject matter addresses (ECON4910, 2011). The first point that the content addresses is the "welfare economic treatment of environmental issues" (ECON4910, 2011). In other words, the content of the course addresses the way environmental issues are handled economically in the public domain (Ibid). The second point is that the content addresses "theories of environmental policy instruments", and thirdly, it addresses "international aspects of environmental issues" (Ibid). The documents expand on these three points and puts forward that the content covers aspects of welfare economics, that is, the "valuation of environmental goods" and "dynamic aspects of environmental issues" (Ibid). These include issues relating to climate change, international environmental problems and possible reasons for international coordination of environmental policies (Ibid). Lecture notes for the course put forward that the course content centers on "applying microeconomic theory for systematic analysis of environmental problems and policy" (ECON4910 Lecture 1, 2011, p. 2). The textual notes make clear that emphasis has been placed on markets, incentives policy and analytical tools, rather than on factual knowledge of ecological aspects (Ibid). It strikes me that the purpose and content of the course focuses solely on the *economics* of environment, rather than on the ecology of environment, even though the field of environment is a very ecological field.

4.4.2 ECON4915

In terms of content, the course addresses and examines development issues in poor countries (ECON4915, 2011). The content explores the causes and effects of poverty, and attempts to recognize and identify policy implications (Ibid). The documents make it clear that "the course is based on theoretical economics…" (Ibid). This means that the subject of development, though it has much to do with human living standards, is approached from an economics perspective. In other words, issues of development are looked at through the lens of economics. The course reading plan puts forward the following topics for the course: insurance, political economy, corruption, inequality and development, growth and development, migration, the rural credit market, and the rural land economy (ECON4915 Reading plan, 2011). Based on the purpose and outcomes for the course, it is highly likely that students are taught theories on these particular topics and analysis in the course will focus specifically on these.

The course content of ECON4910 and ECON4915 makes clear that it is the economics perspective that is emphasized in their respective fields of study. The content says much about the subject matter that students are actually learning in the courses, but it cannot say much about the particular order in which students are learning the subject matter in. For this reason, the description moves on now to the third category, sequence.

4.5 Sequence and instructional processes

Sequence in an academic plan primarily deals with the pattern of arrangement of knowledge in an academic curriculum, that is, the particular order that content is taught in a course or the way its order appears within a course syllabus (Stark and Lattuca, 1997). However, I am not as much interested in the detailed pattern of arrangement of the courses' content as I am in that which characterizes their pattern of arrangement. To find that which characterizes sequence in both courses, I have looked at the pattern of the way content is taught in lectures, because these documents provide a more detailed account of the ways of thinking and the methods that are taught in the courses. The lectures form part of another of Stark and Lattuca's (1997) categories, and, that is modes of instruction. These two categories appear together in this section because they are linked under the category of sequence.

4.5.1 ECON4910

Looking at the documents for the spring semester of 2011, the overall sequencing order for the course's content comprised largely of thirteen topics that were taught in the course (ECON4910 Lecture plan and reading list, 2011). The way the topics appeared in the lecture and reading plan, showed that the overall purpose for their particular order was to analyze the issues and problems brought up in these topics (Ibid). The lecture notes, however, showed more detail in the type or method of analysis that the sequence focused on. So, in the ECON4910 course, I found the sequencing order for the teaching of the content appeared in the following way (ECON4910 Spring 2011, 2011).

The lectures would start out with a theory and would then go on to explain the theory, and define key concepts in the theory. From the theory, the lectures would go on to formulate a basic mathematical model, and, subsequently, the model would then be explained. The lectures would proceed to introduce a different condition or a change in one of the variables, and a new model is then formulated based on this change. A theory is then formulated from the new model. Thereafter, a graph representation of the theory then follows with mathematical equations and values also representing the theory. Further mathematical calculations are made from these equations and these new calculations are shown in another model. This model is then further explained and possible criticisms are given on the model. Based on possible criticisms or alternative explanations, and on possible solutions which may have been put forward for specific problems for previous models before, an alternative model is formulated and explained. The alternative model is then represented by a mathematical equation and this equation is then also shown in the form of a graph. Thereafter, the model, by means of its mathematical equation, is then presented for a different scenario. From here, further calculations are made and the model is then presented again in graph form. Another scenario is then presented to the students, calculations are made based on this scenario and a new model is produced and presented in the form of a mathematical equation. It is interesting to note that the crux of the sequence of the ECON4910 lecture notes seems to focus on the building and testing of models.

4.5.2 ECON4915

Unlike the ECON4910 course, there was no official lecture plan for the ECON4915 course, but a reading plan for the course showed that ten topics were scheduled to be taught for the course in the spring semester of 2011 (ECON4915 Spring 2011, 2011; ECON4915 Reading

plan, 2011). There was also no lecture notes published on the departmental website, but only a set of supplementary notes which had some of the topics in a more comprehensive form written on it were published (ECON4915 Spring 2011, 2011). These supplementary notes have been labeled "supplementary material" and they resemble some of the lecture notes of the ECON4910 course (Ibid). It is this supplementary material or supplementary notes, which, like the lecture notes for ECON4910, which showed in more detail the method of analysis that the sequence focused on in the course. The sequencing order that the supplementary material follows appears in the following way

The supplementary notes would first present the theoretical statement, assertion or concept about a particular topic. The notes would go on to refer to empirical data on the topic. The theory would then be explained in more detail, delving more into the reasons or motivations for the assertion that is made. The notes would provide brief explanations of the key concepts in the theory and would then highlight certain links between the concepts which pertain to the theory in question. The notes would also list some of the key characteristics of certain concepts in the theory, and, the assumptions that have been made about the theory. A mathematical model would be then be formulated and represented as a mathematical equation. Thereafter, the lecturer would pose a question or statement on the possible implication of the application of the model if there was a change in condition or variable. An alternative model would be produced based on this change and would be presented in a graph. The notes then would pose a question about a possibly alternative scenario for the given model and would present this scenario in graph form. Based on this, a new model is then formulated and worked through, and presented to the students. The notes would conclude by providing conclusions or alternative explanations for the theory and these would then be presented to the students. The ECON4915 course seems to also focus on model building in its sequence, but it includes the use of empirical data and explanation of theoretical concepts.

To sum up this section, it seems that both courses have a sequencing pattern which focuses on analysis, but, more importantly, their sequences focus on analysis done through the building and testing of models. This means that, it is the method of analysis which characterizes the sequence of both courses. My point of interest here is that because this particular method of analysis occurs in both courses, this may possibly tell us something about the kind of perspective that these courses use for their analyses. It is important to know the perspective that the course uses, for based on Stark and Lattuca's (1997) definition for sequence, it may

be safe to say that the sequencing order in which content appears in is most likely governed by the perspective that the course takes. Herein, students learn to think in a certain pattern or order when it comes to the content. However, Stark and Lattuca (1997) make the point that the sequencing of content must be linked to students' ability, their prior knowledge of the content and their goals for the course. The category of learners or students in an academic plan has much to do with the prior knowledge that students have of their subject. This category then takes into account the role that students' prior knowledge play in the organization of knowledge in a curriculum. This category of learners/students will now be addressed for ECON4910 and ECON4915.

4.6 Learners/students

4.6.1 ECON4910

The curriculum documents for the course put forward that students are to formally hold a Bachelors degree in economics or an equivalent prior to the course (ECON4910, 2011). This means that, according to the Norwegian higher education system, students were to have received at least three years of higher education in the discipline of economics before they could be admitted to a Master course (Sammfunnsøkonomi, 2011; Norwegian Ministry of Education and research, n.d.). Apart from requiring students to have a Bachelor degree in Economics, the documents put forward more specifically that "students should have good prior skills in basic microeconomic theory and non-cooperative game theory" as well as, other theories related to microeconomic theory (ECON4910, 2011). The course stipulates that prior knowledge for the course is required to be quite specialized. Students needed to be previously acquainted with specific theories and to have received prior training in working with these theories prior to beginning the course.

4.6.2 ECON4915

The course only has one prerequisite according to the document sources, and, that is that students are to hold a Bachelor degree in Economics before being admitted to the course (ECON4915, 2011). This means that students needed to have knowledge of theories and subject matter that was typically taught in an undergraduate Economics curriculum. The document sources put forward that a three-year Bachelor programme in Economics involves

the study of microeconomics and macroeconomics (Economics, 2010). According to the documents, students are to be knowledgeable in the fields of microeconomics and macroeconomics for the course (Ibid). It is clear that the ECON4915 course, as well as the ECON4910 course, require students to have some knowledge of the theories that are taught in these two courses, and they were to have some knowledge on working with these theories analytically. It is highly likely that when knowledge had been organized in the EDEC curriculum, curriculum planners and developers organized the knowledge with the assumption in mind that students enter the courses with some prior knowledge of the courses' subject matter. An interesting point to note here is that it is assumed that students enter the courses primarily with knowledge from a specific field, not from multiple fields. It is on this note of field specialization that the thesis proceeds to present an analysis which investigates whether a case of disciplinarity or interdisciplinarity can be found in ECON4910, ECON4915 and in three of EDEC's other foundational courses. This will be able to show in which way the organization of knowledge has been characterized in the programme. Analysis of this particular investigation is based on some of Stark and Lattuca's (1997) categories which are most likely linked to the organization of knowledge. The categories that will be focused on are purpose, content, sequence and learners.

4.7 Summary

So far this chapter has shown a pattern of one knowledge field being described under each category. At no point was there more than one field of knowledge present under these categories. The programme's two core foundational courses have shown a strong hard, pure presence in each one of them through its prominent mathematical methodology. The courses taught in the first semester, as well as the programme's thesis component, showed a strong tendency towards specialization of knowledge in terms of their theoretical and research focus. The next chapter will attempt to build a case of either disciplinarity or interdisciplinarity, based on that which has been described in chapter four.

5 The case for disciplinarity or interdisciplinarity

To set the stage for investigating a case of disciplinarity or interdisciplinarity, I wish to begin by providing a brief commentary on the three foundational courses, as found in Table 1, that students were required to do in the first semester of the programme. Due to these courses being the first courses that students have to do in the programme, and the fact that they are compulsory courses, seem to lay down a knowledge foundation for the programme, or, perhaps, set a precedent for the type of case the programme has when it comes to the nature of the academic knowledge that it teaches. Based on that which has been described about them in the previous chapter, the ECON4145 and ECON4135 courses focuses strictly on mathematical theories and mathematical ways of analysis. The course, ECON4235, focuses more on a specific branch of economic theory, that is, microeconomics (Ekelund & Hébert, 2007). At no point in the documents and in the interview was there any mention of other theories or subject matter from other disciplines in these courses. It is, thus, the case that these courses are steeped in two specific kinds of disciplinary thinking, most notably; they are steeped in the disciplines of mathematics and economics. Initially, one could quickly identify a case of interdisciplinarity here because two disciplinary fields seems to be at work here, but, according to Boulding (1948), Leontief (1954), Buchanan (2001), Lamont (2009) and Ekelund and Hébert (2007) the dominant methods that are used in the discipline of economics are found in mathematical methodology. Economics and mathematical methodology have been intimately linked since early developments of economics as discipline (Ekelund and Hébert, 2007). Mathematical methodology has been incorporated into the discipline of economics in such a way that the discipline of economics is quite mathematical in character and structure, and is, therefore, viewed as being inseparable from it (Boulding, 1948, Leontief, 1954, Buchanan, 2001, Lamont, 2009; Ekelund and Hébert, 2007). Therefore, the type of knowledge that these courses teach can be viewed as being more disciplinary than interdisciplinary. Also, in terms of Becher's (1994) categories, these courses are, collectively steeped in hard, pure disciplinary thinking. In this sense, these courses have laid down a disciplinary foundation in EDEC, upon which further knowledge in the other courses have been built on. The EDEC programme, therefore, begins with a case of disciplinarity. However, this investigation remains incomplete without looking at the case for the EDEC's two core courses. From here a case for disciplinarity or interdisciplinarity will be investigated

for EDEC, ECON4910 and ECON4915, according to Stark and Lattuca's categories, purpose, content, sequence and learners.

5.1 ECON4910, ECON4915 and EDEC

5.1.1 Purpose

In order to show whether it is disciplinarity or interdisciplinarity that shows up in the category of purpose for EDEC and its core courses, I turn towards what the document sources show about the intended outcomes for the programme. The curriculum documents puts forward that students are to receive "in-depth and specialized disciplinary competence through their education in a Social Science research environment" (Learning outcomes, 2011). This statement makes clear that one of the learning outcomes intended for the programme is that students are to receive knowledge that may be associated with a specialized, disciplinary field. The documents put forward further that, "the candidate is expected to have comprehensive knowledge of their discipline's methodology and scientific foundations" (Ibid). These statements, together with those which have been described under the category of purpose for the ECON4910 and ECON4915 course, make the case that students are to receive specialized, disciplinary knowledge from the programme, not interdisciplinary knowledge. It, therefore, appears then that these outcomes intended for the programme have a strong disciplinary purpose to them. Looking at the data from the interview, it seems that the interview makes the same case for the programme.

When asked about the kind of knowledge that students were supposed to gain from the programme, the programme representative responded in the following way:

> We hope they will be accepted for a job based on their economics education at the Master level. The only problem is this specialization. Obviously if it is a problem, they may not, er, work on macroeconomics, but, they work on this. They are normally professionally skilled in this economics, er, economics subjects within resource, environment and development. So, they become economists in general, is the best way to say it (EDEC programme representative, personal communication, April 1, 2011).

Here, the programme representative seems to link specialized, disciplinary knowledge with graduate employment as a potential outcome for the programme. The programme

representative, however, points to the knowledge specialization as a possible limitation for the programme, in that the programme does not focus on macroeconomics, but makes known that students are able to overcome this possibly through the programmes's flexibility regarding course selection, as described earlier on in the previous chapter. Even in this possible limitation, the programme representative's comments still point to the outcome of disciplinary specialization, because, the knowledge fields which have been mentioned in this response all belong to the discipline of economics.

It can be said that the document sources and the interview both put forward that the purpose of the EDEC programme as far as its organization of knowledge is concerned, is to provide specialized, disciplinary knowledge from the disciplinary field of economics. This shows a clear case for disciplinarity under this category. Closely related to this would be whether there is a case for disciplinarity under the category of content. This will be discussed in the next section.

5.1.2 Content

Chapter four of this thesis described the content of the two core courses as addressing environment and development from an economics perspective. In other words, the courses focused on teaching students to analyze various environmental problems and development issues using economic theory. This alone points to a case of disciplinarity in at least the courses' content, but the curriculum documents put forward further that, "the Master programme in Environmental and Development Economics gives you the possibility to study economics at a high academic level" (Why choose this programme, 2011). The texts also state that, "in addition to the programme's courses…the programme has mandatory high level courses in mathematics, statistics/econometrics and microeconomics…" This relates very much to that which is offered in the foundational courses of the programme, but also speaks of the disciplinary nature of the programme as whole.

The programme representative in the interview, when asked about the aims and objectives of the course, put forward plainly that EDEC is an Economics programme that is oriented toward a particular branch within Economics, which is microeconomics (EDEC programme representative, personal communication, April 1, 2011). Apart from this, the programme representative also made reference to the mathematical character that is found in the discipline of economics. In one of the programme representative's responses, it was said that

"economics is kind of mathematically-oriented (Ibid). The programme representative, therefore, commented in the interview that the department places emphasis on the students' mathematical skills (Ibid). The programme representative's comments here also reflect the hard, pure nature of the programme. With this in mind, the programme representative commented that some students who enter the programme may not realize that it is an economics programme. This may reveal that some students may have preconceived ideas about the programme, in that it may be possible that some students would assume that the programme may contain disciplines other than economics. Though, this point was not probed further in the interview, it may be possible that students make certain assumptions about the programme based on what it says in its title. Despite this, the programme representative made known more than once in the interview that EDEC is not an interdisciplinary programme, but emphatically stated that EDEC is an economics programme (Ibid). Therefore, based on the programme representative's responses as well as the available texts, it goes without saying that a strong case of disciplinarity can be seen under the category of content for the programme. The thesis will now proceed to find a case for disciplinarity or interdisciplinarity in the next category, sequence.

5.1.3 Sequence and instructional processes

In chapter four it was brought forth that the crux of the sequencing order through their modes of instruction for ECON4910 and ECON4915 is the analytical method, particularly the use of mathematical models in the course. The interview with the programme representative also seem to reflect in that the programme representative's department, the Department of Economics emphasizes and focuses on methods when it comes to the knowledge that the programme teaches (EDEC programme representative, personal communication, April 1, 2011). The programme representative stated that, "we kind of have this model focus" (Ibid). It is for this reason that the crux of the sequence for the courses is on model building. The programme representative responded further in the interview that,

> "We are very model-oriented and everything is a very transparent principle. You see the assumptions and you use some manipulations and you get results, but you always control the results. What we are really skeptical about, the other departments here that seem to rely more on opinion and fashion in what they emphasize, but we don't do that here" (EDEC programme representative, personal communication, April 1, 2011).

The programme representative points to the use of mathematical calculations in the building of models and this was shown in the description of the sequencing order for both courses. The programme representative's comments here also seem to reflect the programme representative's assumptions and beliefs of the methods of other disciplines as opposed to that of economics. The use of mathematical modeling in the sequencing order of the courses' content points towards a particular perspective that this method takes, based on what has been shown under the categories of purpose and content, as well as, the programme representative's comments here, this particular perspective comes from the discipline of economics. When students learn according to the sequencing order of the courses, they get to grips with the method of analysis that is used in the course. However, whether they learn this method successfully also may depend on their prior knowledge of working with mathematical models. Stark and Lattuca's (1997) category of learners provides more insight into the role of students' prior knowledge especially upon entering a post-Bachelors programme.

5.1.4 Learners/students

For the ECON4910 and ECON4915 courses, it was mentioned that it is expected that students would have done a Bachelors degree in economics prior to entering these courses. The documents show this to be the case for the whole EDEC programme as well. For, one of the texts state that, "the Department of Economics welcomes highly qualified students with a Bachelor's degree in Economics or equivalent from abroad as well as from Norway" (Why choose this programme, 2011). Caviglia-Harris (2003) explains this need for students to have this kind of prerequisite for the study of post-Bachelors economics. She claims that formal requirements are necessary for economics at post-Bachelors level because they "prepare students for the rigorous economic theories that are applied in advanced classes" (Caviglia-Harris, 2003, p. 195). She goes on to claim that because of the strict disciplinary requirements for advanced economics studies, "economists face challenges when teaching advanced courses to students who do not have an economic background…" (Ibid, p. 196). Caviglia-Harris (2003) also makes the point that advanced courses in economics are understood to be correlated with mathematical skills and ability. Prospective students, then, are required to bring specialized, disciplinary knowledge based on the discipline of economics to the EDEC programme. It is then a case of disciplinarity that is required of students upon entering the programme.

5.2 Summary

To summarize the case for disciplinarity or interdisciplinarity in all five categories, a strong case of disciplinarity was found to be present in all four them. It could also be said that it is disciplinarity, not interdisciplinarity, which characterizes the programme in every category. This means that, in relation to these five categories, the way knowledge is organized in the EDEC curriculum, is characterized by a particular field of disciplinary knowledge, namely, the disciplinary field of economics. The next chapter will hold a further discussion on the organization of knowledge in the EDEC curriculum.

6 Discussion

In order to try and find out what the terms, '*organization of knowledge in curriculum*' would mean in light of the analysis that has been done in this thesis, I put forward that it could essentially mean the way the '*what*' and the '*how*' is arranged to achieve a specific purpose or outcome in a curriculum. If one were to see this definition in terms of an equation or formula, it could possibly be put this way: *what + how → purpose (outcomes)*.

To define the '*what*' in the equation, I put forward that the '*what*' would be the subject matter or the content in a particular curriculum. The '*how*' could then be defined as the way the content is taught or the particular order in which the content appears (the sequence) in the curriculum. Based on that which have been described in chapter four and that which has been found in chapter five, the '*what*' in the EDEC curriculum reveals a very strong orientation towards the discipline of economics. The presentation of the content's theory, methods of inquiry, which are based on mathematical modeling, and, a Bachelor qualification in Economics being a prerequisite for prospective students, all shows that economics is the dominant, if not, only discipline in the programme. Even though the programme appears to name other disciplinary fields in its title, namely that of Environmental and Development studies, the content and the students at which the programme is targeted towards, show that there are no other theories or methods present which may come from these two respective fields. From what has been shown in chapter four and five, the names *environmental* and *development* actually indicate which subject fields an economics study is being done on. It can, therefore, be understood that the '*what*' and the '*how*' in EDEC's organization of knowledge are very disciplinary in nature. The question remains, what is the nature of the purposes of the EDEC curriculum? This will be explored further in the following section.

Stark and Lattuca's (1997) framework for higher education curricula brings forth an interesting feature about their concept of an academic plan. In their framework, they begin their list of categories with the category of purpose. According to their study, Stark and Lattuca (1997) intentionally place this category first because they believe that a curriculum or academic plan usually originates from a place of discussion where strong convictions of what a curriculum should be made of is articulated. According to Stark and Lattuca (1997), these discussions on what the curriculum should like and what it should deliver often depict the purposes or intended outcomes for the curriculum. For Stark and Lattuca (1997), a curriculum

as an academic plan can never be without purpose because this is where a curriculum usually originates. Therefore, the simple equation that I have put forward on the organization of knowledge can be rewritten in the following way: *purposes (outcomes)* → *what + how*.

It could, therefore, be understood that if the purposes are a certain way, chances are, the curriculum will be that same way. So, if the purposes are disciplinary, the curriculum will be disciplinary. The same would be true for purposes that are interdisciplinary. It has been shown that the outcomes for the EDEC programme are disciplinary in its orientation. So, because of this, knowledge that is organized according to the five categories that was used for analysis in this thesis is also disciplinary in its nature and orientation. Furthermore, even though the EDEC programme has followed the Bologna framework with its modularized structure and credit points system, the presence of a dominant disciplinary field shows that EDEC follows a largely disciplinary discourse in the knowledge that is put forward in its curriculum. One could say that EDEC follows the Bologna modularized structure, with disciplinary knowledge in it. Thus, based on Ensor's (2004) and Karseth's (2006) theory, the EDEC curriculum follows two distinct curricular discourses which can viewed as operating simultaneously with one another. However, it is the disciplinarity of the programme which remains its most salient feature.

Contrary to what the title of the EDEC programme suggests, the knowledge in it has been organized in a very disciplinary way. This shows that it may not always be the case that the mere title of a seemingly interdisciplinary program will provide a full indication of the nature of the knowledge fields that may be at work in the programme. This also shows that though Master programmes, through their titles alone, may initially speak to the interdisciplinary appeal of that which higher education are required to offer in their curricula today, it may turn out that beneath the appeal, knowledge may be organized in a way that is in direct contrast to this. I, therefore, put forward that a strong case of disciplinarity may often characterize interdisciplinary Master programmes in higher education. To put it another way, there may be a dominant disciplinary field at work in a programme, or, in other words, a certain kind of knowledge structure in a blended knowledge programme, may take precedence over other knowledge structures which may be present in that particular programme. This may not be the case for every interdisciplinary Master programme, for more analysis needs to be done on more interdisciplinary programmes. EDEC is only one case study. Nevertheless, even with this in mind, the analysis in this thesis has shown that it is highly possible to find an antithesis

between the interdisciplinary/disciplinary dichotomy in terms of what is being presented at face value versus what lies beneath. This in turn may then create a strange antithesis between the way higher education curricula is at first perceived by potential graduates and in the type of knowledge they actually learn in these types of programmes. This antithesis may have already been articulated in chapter one in the following way. While there has been a move in the direction toward creating curricula which cater to multiple contexts, multi-complexities, and transferable workplace skills which may range from the generic to the more specific, in other words, curricula which seem to be determined to meet the demand for performity in the knowledge economy, the Master curriculum seems to hold fast to the disciplinary structures that are found in academic knowledge, and thereby, seem to cling to a disciplinary organization of knowledge. Barnett (2000) explains this antithesis in the following way:

> "Pedagogies, in a mass higher education system, may have the surface structure of promoting independence but contain a deep structure of confining subjectivities within given frameworks. Disciplines in the older universities remain highly classified, separated from each other…" (Barnett, 2000, p. 263).

I put forward my own interpretation of Barnett's (2000) comments here, and that is, that there may be structures that are at work on the surface, namely, modularization through the Bologna framework, which tend to promote the crossing of disciplinary boundaries, but academic knowledge in the curriculum largely adheres to deeper, set-in structures that are based on specific disciplinary domains. In this same spirit, Bradbeer (1999, p. 395) comments that, "the traditional university has tended to value single-discipline study over interdisciplinarity and its internal structures have often acted as barriers to interdisciplinary study". Though, higher education, and, universities in particular, has seen an increase in interdisciplinary curricula over the years, it still has to contend with the existing disciplinary structures that have been traditionally set in them. Bridges (2000, p. 53) also provides commentary on the role of disciplinary structures in the face of increasing interdisciplinarity in higher education and puts forward the following: "The 'subject' looks set to defend its place in the university curriculum for some years to come. In this respect, the near future, at least, may not look so radically different from the past". Bridges (2000), in his commentary points to the steadfastness of disciplinary knowledge and its place in higher education curricula, even in a time when interdisciplinary knowledge is, at present, being promoted more than ever before. With disciplinary structures prevailing in academic knowledge and

given the way higher education curricula is organized and structured, it is, therefore, not so surprising that disciplinarity in interdisciplinary Master programmes often persists in the way knowledge is organized in them. It is important to bear in mind how existing structures which are based on disciplinary knowledge domains contribute to the persistence of disciplinarity in higher education programmes. Based on what commentators, such as Bradbeer (1999) and Bridges (2000) have put forward on the matter, there is no doubt that these do play a role in ensuring that disciplinarity remains a strong feature in higher education academic programmes. However, there still remains a need to reflect on the possible ways how disciplinary structures in EDEC's context have a played a part in placing a strong disciplinary focus in its curriculum. Therefore, attention will now turn towards some reflections on how a case of disciplinarity persists in this specific curriculum.

6.1 Reflections on EDEC's disciplinarity

This study has shown how a strong disciplinary focus has shown up in the EDEC programme, specifically. From here, I move on to reflect on how come a strong disciplinary focus has persisted in the EDEC curriculum. These reflections may also serve to suggest ways to understand a strong case of disciplinarity that is found in the EDEC curriculum.

The first observation that could be made on the presence of EDEC's disciplinarity is that the programme has been administered solely by one academic department which had not only taken responsibility for the practical running and organization of the programme, but, also for the teaching and learning side of the programme. There is a strong likelihood that the disciplinary culture which comes from the department has played a significant role in the kind of knowledge that appears in the curriculum of their programmes. This seems to echo the ideas about the role that social and cultural aspects of disciplines play which has been put forward by Knorr Cetina (1999) and Becher and Trowler (2001) back in chapter two of this thesis. Knorr Cetina (1999) in her definition of disciplinary cultures puts forward that cultures include patterns of practices that are associated with a group of experts in a field. She claims that these have a bearing on the way disciplines develop and grow, and, over time, they become so distinctive that they become "cultural specificities", or separate domains of knowledge (Knorr Cetina, 1999, p. 2). Becher and Trowler (2001) also put forward that disciplinary cultures are manifested in specializations in knowledge fields, experts in the field who are linked by their similar attitudes and mindsets toward knowledge, as well as their

practices. They, therefore, form visible clusters or groups with visible boundaries which are organized around their common ideas and values about knowledge, thus, forming knowledge communities, which they see as academic tribes and territories (Becher & Trowler, 2001). Apart from their values and practices, different disciplinary cultures are very much driven by what experts in academic disciplines believe about what constitutes as academic knowledge and how to conceptually approach theory and inquiry, methodologically.

If experts, who are bound by their common practices and values in a specific knowledge field, are administering, organizing and teaching academic courses and programmes in their respective departments, the programmes and courses are bound to reflect the disciplinary cultures in which they operate in through the actual knowledge that they teach. In the case of the EDEC programme this has been made clearer in some of the responses from the interview with programme representative. For example, in one response, the programme representative mentions the following statement, "…other departments here…seem to rely more on opinion and fashion in what they emphasize, but we don't do that here" (EDEC programme representative, personal communication, April 1, 2011). This statement shows a somewhat 'othering' attitude towards a different department, meaning that the programme representative simply separates or distinguishes the economics department from another department based on how they approach theoretical inquiry. The programme representative seems to refer to "we" and "they" in a cultural sense, as in "we do things differently to them", almost making a cultural distinction between the two departments. Knorr Cetina (1999) puts forward that as specializations grow and experts identify more and more with each other within specific a field, they separate into different knowledge domains, causing distinctions between different fields of knowledge. So, they become 'they' and we become 'we', in terms of the way experts from different fields see each other. Becher and Trowler's (2001) idea of academic tribes and territories also seem to come to the fore here and is particular noted in the programme representative's statements above.

The programme representative goes further and says the following, "we are very model oriented" and "we have this kind of model focus" (EDEC programme representative, personal communication, April 1, 2011). In these statements, the programme representative seems to associate the department's disciplinary culture with a particular type of methodology that is used in the discipline. The programme representative seems to characterize a particular method of inquiry with a specific disciplinary field. In the case of EDEC, the programme

representative is characterizing the economic method of inquiry with the discipline of economics. When referring to the academic department, the programme representative places great emphasis on methodology. This means that the type of methodology that is used matters considerably in the discipline. There is, therefore, a strong methodological focus in the programmes and courses. Not only that, the methodological focus is specifically on a particular type of methodology, that is, the methods of inquiry that is specifically found in the discipline of economics. This would make it difficult for methods of inquiry, as well as theoretical approaches from other disciplines to make their way into the courses and programmes that the programme's representative's department administers. Therefore, it may stand to reason that there would be a strong disciplinary focus in the department's programmes and courses. In the case of EDEC, a single disciplinary culture, coming from the discipline of economics, has allowed for a strong case of disciplinarity to feature in its curriculum, and this has characterized the programme's knowledge organization, as well as its knowledge selection.

The focus on one specific method of inquiry, one specific way of solving problems, one specific kind of logical structure all seem to point toward Becher and Trowler's (2001) idea of specialization in academic knowledge, that each academic department specializes in one particular disciplinary field. In this way, one may find that, as one moves from one academic department to another, each department holds on to and promotes a single disciplinary culture. In EDEC's case, the economics department holds on to the single disciplinary culture of economics. Lamont (2009) comments on the disciplinary culture of economics and puts forward that the disciplinary culture is understood to be a homogeneous culture, where there is a strong consensus on disciplinary issues such as what constitutes good research. This homogeneity is typical for hard disciplinary cultures, where there is much more consensus on disciplinary issues amongst experts in the field (Donald, 1990). The homogeneity that is found in the disciplinary culture of economics may certainly play a part in posing difficulties in including knowledge from other disciplinary fields in its curricula. This may lead one to believe that interdisciplinarity may be more easily achieved in less homogeneous disciplinary cultures. This assumption still has to be tested on a wider range of programmes across disciplines, something that cannot be done in this study, but nevertheless, this assumption may leave open a possibility for further research in this area. Besides this, it can be said that disciplinarity persists in higher education academic curricula not only because of the steadfastness of actual disciplinary knowledge (Young & Muller, 2010), but, most

considerably, because of single disciplinary cultures which academic departments adhere to. My study has shown in some way the role that disciplinary cultures in academic departments may play in the way knowledge is organized in the curriculums of their academic programmes. In this way, my study may help to shed some light on the general extent of interdisciplinarity in higher education curricula today, in other words, how far higher education institutions have succeeded in implementing interdisciplinary curricula in academic programmes across a range of disciplines, particularly in the face of persistent disciplinary cultures. This may allow one to revert back to one particular theme that was discussed in chapter one of this thesis, which is the theme of the deconstruction of knowledge through modularization.

The shift towards modularization in higher education curricula and the move away from the traditional disciplinary curriculum have ushered in the arrival of a curriculum that is interdisciplinary in its organization and knowledge selection, according to authors such as Bridges (2000) and Ensor (2004). Modularization has now become the standard structure for higher education curricula today one would almost expect that interdisciplinarity may have advanced to such an extent that very little disciplinary curricula would be seen today, and that curricula which appear to present more than one field of knowledge, would be completely blended in terms of the way the interdisciplinary knowledge would be organized. However, EDEC has shown that this may not necessarily be the case, even in the age of curricular modularization. It seems that modularization may not have been so successful in the attempt to completely deconstruct traditional disciplinary knowledge in higher education curricula, because disciplinarity still seems to persist in higher education curricula today. This not only has implications for the organization of knowledge in higher education curricula, but also has implications for student learning in a time when higher education curricula are urged to be more inclusive when it comes to the kinds of knowledge that they present.

7 Conclusion

The story of this thesis has very much revolved around the particular characteristics of the organization of knowledge in interdisciplinary Master programmes. It was shown thus far that within a particular Master programme, which was thought at first to be interdisciplinary, that the organization of knowledge is strongly disciplinary. However, to end off here would provide a conclusion that may be too abrupt and may provide an incomplete perspective on my story thus far. So, in concluding this thesis, I wish to take a few steps back as a form of reflection on the story that has been presented in this thesis thus far.

Twenty-first century higher education has seen some remarkable changes in the way academic curricula have been structured. Particularly, there have been changes to the way Master programmes have been structured and these were largely brought on by the Bologna Declaration, giving rise to what has been seen as the Bologna Master. A typical Bologna Master programme consists of courses which are made up modules with credit points attached to them. Some commentators, such as Bridges (2000), have remarked that this particular transition in higher education curricular has allowed for the deconstruction and reconstruction of academic knowledge. This means that there has now been more of a tendency to break traditional patterns of learning, which, back then, largely took the form of longer courses that came from a single disciplinary field and was fixed within a disciplinary type of curriculum. The Bologna Declaration brought on the transition from traditionally disciplined-based curricula to shorter modularized courses. These modularized courses could be exchanged to suit students' needs and interests. The move towards modularization and creditization has essentially allowed for more of an exchange of knowledge from various knowledge fields, and this type of flexibility in course selection and/or de-selection, has thus allowed higher education curricula to be less discipline-fixed, taking on a more mixed appearance in their knowledge makeup. Higher education curricula are now able to be interdisciplinary in the knowledge that it delivers. However, this deconstructing and reconstructing move in academic knowledge did not take place within a vacuum. In chapter one of this thesis, it was discussed that this transition has largely been driven by the demands and requirements that has been put forward by the knowledge economy in terms of transferable skills for the labour market and responding to the needs of society. These have thus resulted in higher education institutions developing and structuring their curricula to respond to these needs and requirements in the academic programmes that they offer. At this, higher education

institutions are required to make sure that the outcomes of their programmes would produce graduates who would have the appropriate skills for the labour market, who would be able to work within multiple contexts, and, who would have the ability to generate new knowledge through innovation and productivity. This has also meant that higher education institutions have been required to change the way curricular and academic programmes have been traditionally structured, from strictly discipline-oriented curricula to curricula that is more inclusive in two ways. One way is that higher education curriculum are required to be more inclusive of various knowledge fields, and, the other way, is that they have to have a more student-centered approach.

So, in keeping with the above conditions, higher education institutions may initially attempt to do this by entitling or naming their various programmes in a way that would respond to the conditions mentioned above. The EDEC programme is an example of this, but in examining the programme more closely, through the document sources and the interview with the programme representative, applying four of Stark and Lattuca's (1997) categories from their academic plan, and taking Becher's (1994) perspectives on disciplinary knowledge, this has allowed me to see the characteristic of disciplinarity in the curriculum. The analysis of the EDEC programme and its two core courses, ECON4910 and ECON4915 has revealed that the discipline of economics has characterized the way knowledge has been organized in them. Based on this, I attempt to answer the research question that was put forward in the first chapter, that interdisciplinary Master programmes may often be characterized, not by their interdisciplinarity, but by their disciplinarity. This may entail that there may be a disciplinary dominance, if there are, indeed, more than one knowledge field present in curriculum. In other words, one particular knowledge field could be dominant in a curriculum that may have blended knowledge fields in it. If this is the case, then what would this mean for student learning?

In an attempt to provide a possible answer or response to the second research question that was put forward in the first chapter, I put forward that even though there has now been a drive for students to learn to think across disciplinary boundaries, my analysis supports the idea that has been put forward by Barnett (2000) and Bridges (2000), that student learning in academic programmes is still taking place along disciplinary lines. This means that, through the curriculum, specialized knowledge is being favoured over blended knowledge. Or, as Bridges (2000) puts it, specialized knowledge is being favoured over knowledge which promotes

more cross curricular skills. This was found to be the case in the EDEC curriculum, where there has been more emphasis in the programme's outcomes on specialized knowledge and skills. I put forward that though there has been a break with tradition as far as the way academic curricula have been structured, this has only happened on the surface. This means that academic curricula in Master programmes largely adheres to a modularized structure and appearance, but the organization of knowledge within them and the teaching and learning trajectories that are associated with them are still very much traditionally, discipline-based. Student learning, then, in interdisciplinary Master programmes still adheres to traditional disciplinary boundaries. The presence of traditional disciplinary domains in academic knowledge is an observation that was at first pointed out by theorists such as Becher (1994) and Becher and Trowler (2001). Furthermore, it was also Becher and Trowler (2001) who have pointed out the presence of disciplinary cultures through their theory on disciplines being likened to academic tribes and territories. The idea that an academic department adheres to a particular disciplinary culture through its focus on a specialized field of knowledge and working with a specialized methodology, brings forth the notion that a single academic department adheres to a single disciplinary culture. This was certainly shown to be the case in the EDEC programme. In addition, the single disciplinary culture in the department of economics was shown to make its way into the EDEC curriculum in the way that a strong disciplinary focus has characterized the organization of its curriculum. It was discussed in the previous chapter that for the EDEC programme, the single disciplinary culture, with its existing disciplinary structures, has not made any room for methodologies from other disciplines to feature in its curriculum. This has, thus, contributed largely to the strong case of disciplinarity that has characterized the EDEC curriculum. Even though was shown to be the case for the EDEC programme, the study that was conducted on the EDEC curriculum may raise some questions on how disciplinary cultures affect the way knowledge in higher education curricula is organized, as well as the nature of the knowledge that is selected for Master programmes which present more than one disciplinary knowledge field in them.

The presence of a single disciplinary culture in a single academic department may raise the question of whether this is typical for academic departments in higher education on the whole, especially for departments which administer and run interdisciplinary programmes. It may raise questions over the presence and persistence of disciplinary cultures in higher education. Based on existing literature, disciplinary cultures have been a marked feature of academic knowledge for a very long time, according to authors such as Young & Muller (2010), Muller

(2009) and Becher & Trowler (2001), and, according to Young and Muller (2010), disciplinary cultures seem to steadfastly linger on. So far, the only change that can be seen in higher education curricula is the way curricular structures appear on the surface. This means that modularization has, by and large, mostly changed the appearance of higher education curricula. On the other hand, there seems to have been no significant change in the way student learning has taken place in Master programmes, and, there is no telling whether there would be a notable change in the future. For now, disciplinarity still seems to be the prominent characteristic of higher education curricula, even in those which may be considered to be interdisciplinary.

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Appendix I

Interview guide

Interview conducted with the programme representative of the Environmental and Development Economics (EDEC) master programme on Friday, April 1, 2011, from 10h00-11h00.

Interview questions

A. Background and general aims

1. Can you please tell me, when did this particular programme start?
2. Why was the programme put together?
3. Tell me about the general aims or objectives of the programme, can you please describe them?
4. How long did it take for the programme to be put together?
5. What is the language of instruction in the programme?

B. Interdisciplinarity and disciplines

6. There are many interdisciplinary study programmes in universities at present, certainly more now than before, is this an interdisciplinary programme?
7. If so, which disciplines does this programme contain?
8. Have the modules been taken from other disciplines specifically to make up this particular programme? Or have the modules been specially designed and created for this programme?
9. Are there any challenges related to combining different disciplines in a programme like this?
10. If so, can you describe some these challenges?
11. What do you see as some of the strengths of combining different disciplines in the programme?
12. Can you please explain the process in which the modules were designed and selected?
13. Can you tell me a bit more about the teachers working in the programme, from which disciplines, faculties or departments do they come from?

C. Focus

14. Can you tell me a bit more about the focus of the programme; does the programme have an international or domestic focus?
15. Some programmes have a more theoretical or practical focus; does the programme have a theoretical focus, practical or professional, or, problem-based focus or perhaps a combination of these?
16. Is the programme purely academic in nature or does this programme require students to do any kind of practical work, such as working in a professional setting?

17. Can you tell me a bit more about the tasks that students have to do in the programme?

D. Knowledge

18. What kind of knowledge are students supposed to receive from the programme?
19. What kinds of skills are students supposed to gain in the programme?
20. What kinds of graduates does this programme hope to create?
21. Are students required to have prior knowledge of economic, sociological or developmental theories or studies before being admitted into the programme?

E. Assessment

22. Can you please describe the ways in which students are assessed in the programme?
23. How often are they assessed in the programme?
24. Does the programme undergo any other kind of evaluation, such as assessing the quality of teaching?
25. Does the programme undergo any external evaluation from professional or governmental bodies?
26. If so, how are often do these other assessment procedures take place?

F. Changes

27. Has the programme undergone any changes since its inception?
28. If so, can you describe the kinds of changes it has experienced?
29. Do you see changes being made to the programme in the foreseeable future?
30. If so, can you please explain how it will change?
31. What do you see as the reasons for these particular changes?

*Is there anything that you would like to add before we end off?

*Thank you for your time and allowing me to interview you.

*Are there any additional texts or material, for example course plans or other documents, other than what is stated on the university website?

Appendix II

Invitation to participate in research project on interdisciplinary study programmes in higher education

To professor [Name],

Many thanks for your willingness to participate in an interview conducted as part of my master thesis work at the Faculty of Education, University of Oslo. I am a student at the European Master programme in Higher Education, and my thesis focuses on interdisciplinary programmes in higher education with a special interest in their epistemological structure, objectives and intended outcomes. The existing literature on how students become introduced to knowledge domains in higher education tends to focus on discipline-specific knowledge and educational arrangements. My interest is to explore how interdisciplinary programs are composed in terms of epistemological structures and arrangements of teaching and learning activities, and identify challenges related to combine different disciplines in one program. I will use the master programme in Environmental and Development Economics as a case study for my analysis. This programme is selected because of its capacity to provide rich information about the research questions.

Methodologically, the thesis will be based on document analysis of curriculum documents and core texts describing the programme and its activities. However to secure that I have access to relevant information and to get insight in the background and curriculum development, I would like to include an interview with you as director of the programme. The interview will be used for the purpose of research for my master thesis only. The information will be handled in accordance with the Personal Data Act. Your personal name will not be mentioned in my thesis, but the name of the study programme which I will be analysing will be mentioned. As a point of reference regarding the interview, you will be referred to as the "programme representative", not by your personal name. For the sake of securing correct information I would like to record the interview.

If you have questions about the project you are welcome to contact me at any time. You are also welcome to contact my supervisor, Professor Monika Nerland at the Department for Educational Research: monika.nerland@ped.uio.no, phone 22 85 81 72.

With best wishes,

Saundre Lasca McConney
E-mail: saundrem@student.uv.uio.no
Contact number: +4796874568

I hereby confirm that I have read the information above and agree to participate in this project:

_____	_____
Place, date	Signature

Appendix III

EDEC programme description

Environmental and Development Economics (Master's two years)

The Master Programme in Environmental and Development Economics gives you the possibility to study economics at a high academic level. In addition to the programme courses in environmental economics, resource economics and development economics, the programme has mandatory high-level courses in mathematics, statistics/econometrics and microeconomics as well as 3-4 optional courses. In addition to nine courses, completion of the programme also requires a supervised master's thesis and a final comprehensive oral exam.

The programme is a two-year, full time degree in economics, which is taught entirely in English.

Learning outcomes

A Master's candidate is expected to acquire in-depth and specialized disciplinary competence through their education in a Social Science research environment. The candidate is expected to have comprehensive knowledge of their discipline's methodology and scientific foundations. The Master's degree program prepares a candidate for participation in research projects and for doctoral studies. A Master's candidate will be able to resolve work-related tasks with high-level skill requirements.

Knowledge outcomes

The Environmental and Development programme aims at providing students interested in environment/resource economics and/or development economics comprehensive introductions to the theory of these fields and also solid foundations for further study through mandatory advanced courses in mathematics, statistics/econometrics and microeconomics, sufficient for fulfilling entry requirements for doctoral study at most universities. The programme also comprises optional choices of high-level economic theory courses, opening up for further studies or career paths in other directions.

Environmental and development issues are often taught as softer courses for varied backgrounds, while this programme is a high-level theoretical programme offering academic qualifications suitable for an academic career. The programme is also highly suitable for work in international organizations with both specialized and general background. With the optional choice of courses in the programme it can also easily be adapted for careers in government administration and in financial enterprises.

Skills

The Master's degree programme aims to provide candidates with high-level methodological, analytical and work-related skills. Candidates will also be able to convey and disseminate information to a range of audiences. The following is expected of Master's students:

1. Methodological skills
   The candidate should be able to find and evaluate relevant sources in a critical manner. They should further be able to generate independent assessments and develop projects.
2. Analytical skills
   Analytic skills at this level include the ability to formulate researchable Social Science research questions in an independent manner as well as the ability to analyze large amounts of information through the application of Social Science methods.
3. Dissemination of information
   The candidate should be able to present information and ideas in an instructive manner to both researchers and the general public.
4. Work-related skills
   Work-related skills refer to the candidate's ability to independently develop and specialise their skill sets. The candidate should be able to participate in projects and contribute to research activities. The candidate will be able to carry out analytical and management tasks as well as assume responsibility for such tasks in knowledge intensive environments such as private businesses, the public sector and voluntary organizations.

Target group for the programme

The Department of Economics welcomes highly qualified students with a Bachelor's degree in Economics or equivalent from abroad as well as from Norway.

Admittance requires a working knowledge of elementary calculus of one and several variables and linear algebra. Concepts such as partial derivatives, Lagrange's method for constrained optimization, implicit differentiation, determinants and matrix inverses will be assumed known. It also requires a working knowledge of elementary statistics/econometrics with emphasis on modeling and inference, including concepts such as probability distribution, parameter, estimator, p-value, confidence interval and linear regression.

Structure of EDEC: 2012 and onwards

Changes have been made to the structure of the master's programmes. Environmental and Development Economics (EDEC) is no longer offered as a master's programme. However, students admitted to the master's degree in Economics will be able to choose between three different programme options, one of these being Environmental, Resource- and Development Economics. In connection with these changes, we have published new web pages.

Sources:

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Appendix IV

ECON4910 course description

ECON4910 – Environmental Economics

Course content

Main content:

- Welfare economic treatment of environmental issues
- Theories of environmental policy instruments
- International aspects of environmental issues
- The climate problem will be given particular emphasis.

Learning outcomes

Knowledge
You should know

- key concepts in environmental economics and the economic issues related to a large range of environmental problems
- elements of welfare economics, theories of environmental policy instruments, valuation of environmental goods, dynamic aspects of environmental issues, and international aspects of environmental issues.
- analyses of environmental policy instruments, with particular emphasis on situations with uncertainty and/or asymmetric information and on situations with other market failures.
- the international dimension of environmental economics covers both the case in which the environmental problem itself is international and the case in which there may be other reasons for international co-ordination of environmental policies.

Skills
You should

- have a good understanding of the basic theory of environmental economics
- have an initial overview of central contributions to the field and obtain a handle to further explore the scientific literature
- be able to study a specific environmental problem by applying a variety of methods and by adapting general models taught in the course

Competence
You should

- be able to read and understand project reports and journal articles that make use of the concepts and methods that are introduced in the course

- be able to make use of the course content in your own academic work, for example in analyses that are part of the master's thesis

Prerequisites

Formal prerequisites

Bachelor's degree in Economics, or equivalent.

Recommended prior knowledge

Students should have good prior skills in **basic microeconomic theory and non-cooperative game theory**.

Familiarity with **dynamic optimization methods**, for example through ECON4140 - Mathematics 3: Differential equations, static and dynamic optimization /ECON4145 is an advantage.

Students not familiar with dynamic optimization methods must be prepared to put in extra effort on certain topics.

Teaching

Lectures: 2 hours per week throughout the semester.

Seminars: 2 hours per week through parts of the semester.

There might occur weeks exempt from teaching.

Exam information

A 3-hour written exam.

Source:

ECON4910 – Environmental Economics. (2012). Retrieved November 23, 2012, from http://www.uio.no/studier/emner/sv/oekonomi/ECON4910/index.xml

Appendix V

ECON4915 course description

ECON4915 – Development Economics

Course content

Development Economics addresses development issues for poor countries. The course aims at explaining the causes and effects of poverty and deriving policy implications. The course is based on theoretical economics, adapted to reflect the special institutional structures that characterize most developing countries.

Learning outcomes

Knowledge
You should know

- the magnitude of the differences in incomes between countries and peoples of the world
- a variety of theoretical models and mechanisms and arguments that are relevant for development and poverty issues
- empirical research relevant for development and poverty issues

Skills
You should be able to

- master theoretical models that illustrate important development issues
- derive and discuss policy implications
- critically assess the quality and relevance of empirical research

Competence
You should

- be able to read and understand project reports and journal articles that make use of the concepts and methods that are introduced in the course
- be able to make use of the course content in your own academic work, for example in analyses that are part of the master's thesis

Prerequisites

Formal prerequisites

Bachelor's degree in Economics, or equivalent

Teaching

Lectures: 2 hours per week throughout the semester.

Seminars: 2 hours per week through parts of the semester.

There might occur weeks exempt from teaching.

Students are stimulated to form informal reading groups. In the seminars the students are trained in oral and written presentations.

The seminars are integrated with the lectures and the students will take part, individually and on a group basis, also in the lectures. The students will throughout the term receive written and oral feedback.

Exam information

A 3-hour written school exam.

Source:

ECON4915 – Development Economics (2012). Retrieved November 23, 2012, from http://www.uio.no/studier/emner/sv/oekonomi/ECON4915/index.xml